THE OIL WEEKLY

ENGINEERING « NEWS » STATISTICS

EDITORIAL STAFF
WARREN L. BAKER
Editor

J. KENT RIDLEY
Managing Editor

ASSOCIATE EDITORS
L. J. LOGAN — BRAD MILLS
WM. V. GROSS

DISTRICT EDITORS
B. F. LINZ.....Washington
BEN ALTMAN, FRANK TAYLOR.....Tulsa
H. H. KING.....Fort Worth
EARL S. POST.....San Antonio
R. W. BYRAM.....Austin
CHAS. LEYENDECKER, WM. H. STRANG, Z. H. MISCHKA.....Houston

PUBLISHED BY
THE GULF PUBLISHING COMPANY
HOUSTON, TEXAS

R. L. DUDLEY, *President*
A. L. BURNS, *General Manager*
S. W. ROBINSON, *Editorial Director*

Staff correspondents at all important points.

Member Audit Bureau of Circulation
Member Associated Business Papers, Inc.

BRANCH OFFICES
NEW YORK.....250 Park Ave.
PITTSBURGH.....Vandergrift Bldg.
CHICAGO.....332 S. Michigan Ave.
LOS ANGELES..W. W. Wilson Bldg., Huntington Park, Calif.
TULSA.....Hunt Bldg.
FORT WORTH.W. T. Waggoner Bldg.
SAN ANTONIO.....Smith Young Tower Bldg.
WASHINGTON.....Albee Bldg.

ADVERTISING STAFF
DICK SWINSKY.....New York
C. A. WARDLEY.....Pittsburgh
H. G. FITZPATRICK.....Chicago
J. F. CARTER, JR.....Tulsa
JAY CURTS, JR.....Los Angeles
CHAS. WYATT.....Houston

CIRCULATION DEPARTMENT
J. T. WAGONER.....Manager

SPECIALIZED OIL JOURNALS
Published by
THE GULF PUBLISHING COMPANY

The Oil Man's Calendar

FEB.	
12–15	American Institute of Mining & Metallurgical Engineers, New York.
23	American Petroleum Institute, Illinois Basin Chapter, Division of Production, Mt. Vernon, Ill.
MAR.	
14–15	American Petroleum Institute, Mid-Continent District, Division of Production, Wichita, Kansas.
19	American Petroleum Institute, Pacific Coast District, Division of Production, Los Angeles.
28–29	American Petroleum Institute, Southwestern District, Division of Production, Houston, Texas.
31	Western Petroleum Refiners Association, Wichita, Kansas.
APR.	
10–12	American Association of Petroleum Geologists, Chicago.
11–12	American Petroleum Institute, Eastern District, Division of Production, Columbus, Ohio.
16–18	Southwestern Gas Measurement Short Course, Norman, Okla.
18–19	National Petroleum Association, Cleveland, Ohio.
26–27	Petroleum & Natural Gas Conference, State College, Pa.
MAY	
1– 3	Petroleum Industry Electrical Association, Dallas, Texas.
15–17	Natural Gasoline Association, of America, Tulsa.
16–18	National Oil Scouts and Land Man's Association, Little Rock, Arkansas
18–25	International PetroleumExposition & Congress, Tulsa.
27–31	American Petroleum Institute, Mid-Year Meeting, Ft. Worth, Tex.
JUNE	
1	Illinois-Indiana Petroleum Association, Eighth Annual Conference, Robinson, Ill.

Contents • February 5, 1940

Volume 96, Number 9

This Week's Panorama 11

Feature Section:

Maintenance of Pipe Line Electrical Equipment 12

Oil Field Ingenuity Conquers Trick Blowout 15

Natural Gas Industry Is Expecting All-Time Peak 18
BY L. J. LOGAN

Economics of Well Spacing 21
BY DR. IONEL I. GARDESCU

News Section and News Index 37

Looking Ahead with the Editor 4

Drilling Contractors' Note Book 31

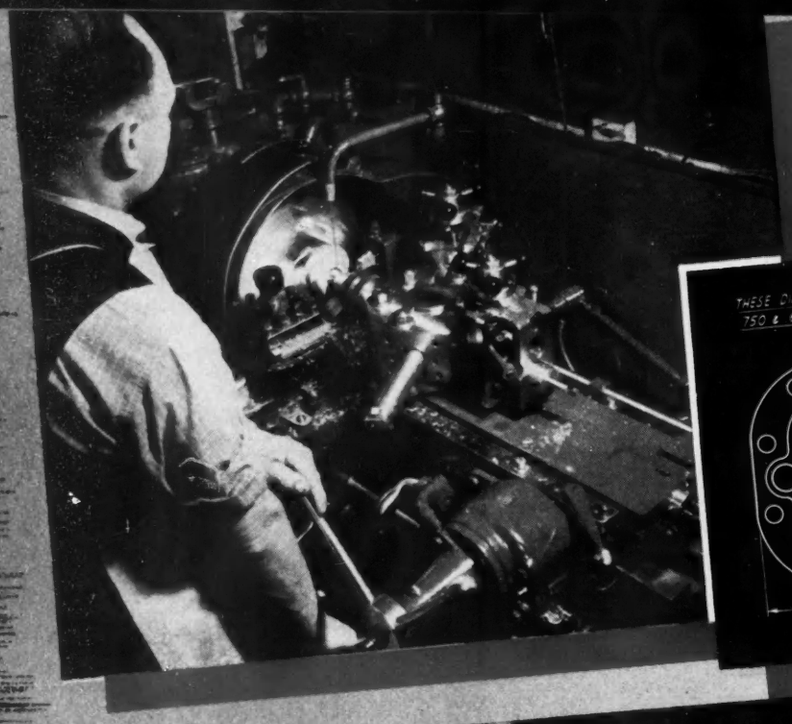
Notes for the Equipment Buyer and User 69

Squeaks from the Bull Wheel 73

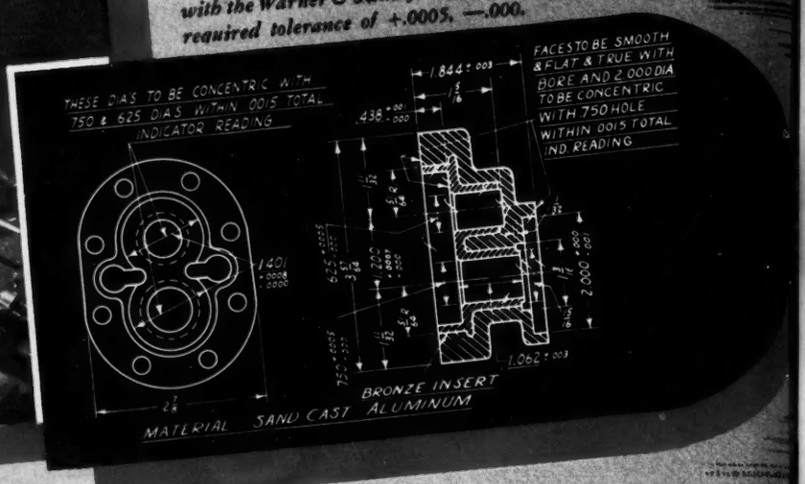
Advertisers' Index 74

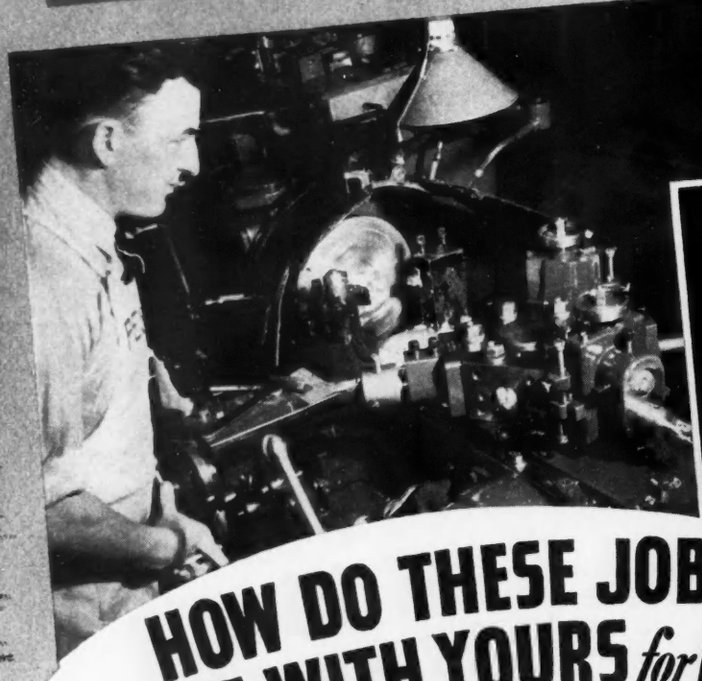
Published every Monday. Single Copies 15 cents (Special Issues 50c). Subscription price: domestic and foreign, $2.00 a year; 2 years $3.00. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil industry or the manufacturing and distribution of oil field supplies. Advertising rates on application.

Copyrighted 1940, by The Gulf Publishing Company.

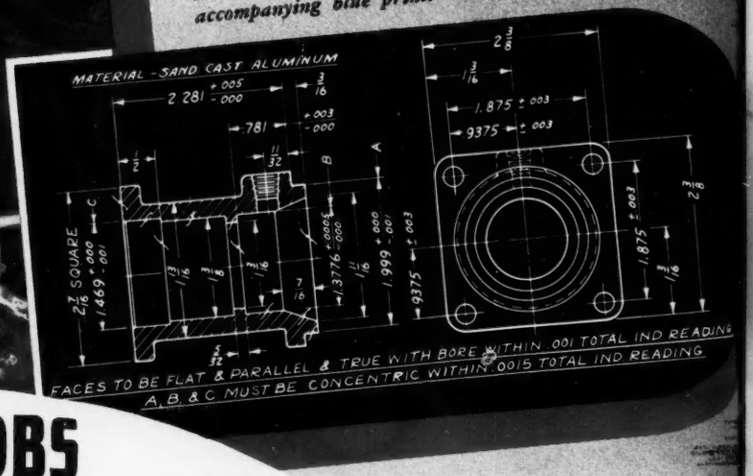


Four operations on sand cast aluminum—face, bore, taper and chamfer—with the Warner & Swasey holding the required tolerance of +.0005, —.000.


THESE DIAS TO BE CONCENTRIC WITH .750 & .625 DIAS WITHIN .0015 TOTAL INDICATOR READING
FACES TO BE SMOOTH & FLAT & TRUE WITH BORE AND 2.000 DIA TO BE CONCENTRIC WITH .750 HOLE WITHIN .0015 TOTAL IND READING
1.844 +.003
.438 +.000
1.401 +.000 -.0008
2.000 +.000 -.001
1.062 +.003
BRONZE INSERT
MATERIAL SAND CAST ALUMINUM



Warner & Swasey No. 3 Universal machining a high pressure Pump Body made of sand cast aluminum with bronze insert cast in place. Note the limits of +.0005, —.000 on the accompanying blue print.


MATERIAL SAND CAST ALUMINUM
2.281 +.005 -.000
.781 +.003 -.000
1.875 ±.003
.9375 ±.003
2.7/16 SQUARE
1.469 +.000 -.001
1.999 +.000 -.001
.3776 +.0005 -.000
.9375 ±.003
1.875 ±.003
FACES TO BE FLAT & PARALLEL & TRUE WITH BORE WITHIN .001 TOTAL IND READING
A, B, & C MUST BE CONCENTRIC WITHIN .0015 TOTAL IND READING

HOW DO THESE JOBS COMPARE WITH YOURS *for* ACCURACY?

• Pesco Pumps, so widely used in aircraft, are manufactured by Pump Engineering Service Corporation, Cleveland, Ohio.

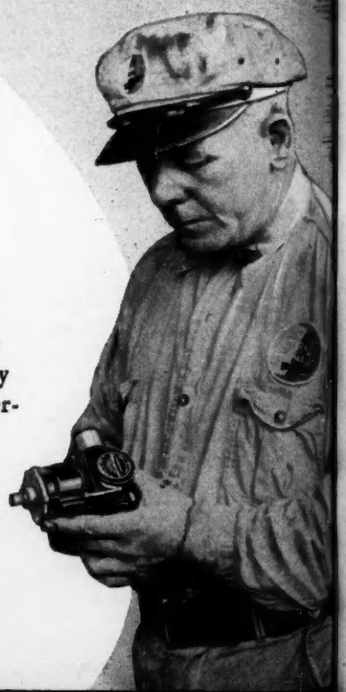
The fuel flow, hydraulic landing gear, and automatic pilot all depend on Pesco pumps. Electric-driven Pesco Pumps also control the free feathering of the propeller and de-icing mechanisms.

These pumps are machined to close tolerances to assure their uninterrupted performance under all weather conditions.

In the shops of Pump Engineering Corporation you will find a whole battery of Warner & Swasey turret lathes at work. They are depended upon to accurately machine these close tolerances.

In your turret lathe department you, too, can obtain machining accuracy or high-speed production or power and rigidity on heavy-duty work if you use Warner & Swasey Turret Lathes. They are easy to operate, too—another advantage your men will like.

Whatever your machining problem may be, we believe we can be of help to you, so if you will write us we will gladly send our local Warner & Swasey field engineer to help you. There's no obligation—write



WARNER & SWASEY
Turret Lathes
Cleveland

YOU CAN TURN IT BETTER, FASTER, FOR LESS—WITH A WARNER & SWASEY

THE OIL WEEKLY

FEBRUARY 5, 1940

VOLUME 96 NUMBER 9

The Week's Panorama

THE difficulties of controlling gasoline stocks while meeting heavy demand for fuel oils have been accentuated by the protracted cold weather.

The piling up of gasoline in storage has been accelerated by curtailment of motor traffic; and despite relatively large output at refineries, it has been necessary to dip deeply into scanty stocks of fuel oils to supply homes and other buildings with adequate light oils for heating and to keep factories, railroads, ships, and electric power plants supplied with heavy fuel oils for their current high operations.

Control of Yields . . . . . .

Although this winter has brought exceptional trouble in controlling gasoline stocks while meeting heavy seasonal requirements of fuel oil, the problem is perennial and is receiving the constructive consideration of executives.

Some refiners are known to be making adjustments of plant equipment and operations which afford still larger yields of heating oil and smaller yields of gasoline, after having taken advantage heretofore of available flexibility of yields.

However, particular crudes lend themselves best and most economically to the manufacture of particular products, and the suggestion has been made that state regulatory officials should keep this problem in mind in determining field allowables. It is suggested that in the heating oil season, allowables should be relatively large in fields yielding crude high in fuel oil content and relatively small in fields that furnish "gasoline crude." And conversely, according to the suggestion, the former class of fields should be cut back and the latter opened up in the heavy gasoline consuming season.

Gasoline Backs Up . . . . . .

Curtailment of demand for gasoline was evidenced in reports of refiners to the American Petroleum Institute for the week ended January 27, when the large amount of 2,034,000 barrels went to storage, as compared with 854,000 barrels the week before, despite somewhat smaller production at the refineries. The 87,914,000-barrel inventory as of January 27 was 13.8 percent greater than that held on the corresponding date a year ago, and it was probably around 12,000,000 barrels larger than necessary.

Demand Lags . . . . . .

Inasmuch as storage had to absorb 2,034,000 barrels of the 10,986,000 barrels of gasoline produced in the seven days ended January 27, indicated demand during the period was 8,952,000 barrels, or an average of only 1,278,859 barrels daily. That was 8 percent less than the average daily requirements for January as estimated by the Bureau of Mines, and 4.3 percent less than the actual average daily demand in January of 1939. The Bureau of Mines in its forecast for January, 1940, had anticipated a 4.6 percent increase over January, 1939.

Exports Off . . . . . .

The lagging demand for gasoline reflects particularly the relatively small exports, and no increase in foreign shipments is in prospect for the immediate future. The Bureau of Mines in its forecast for February said that exporters were pessimistic on the export outlook. The agency, accordingly, dropped from its January estimate of 3,800,000 barrels to one of 2,800,000 barrels as the likely exports of gasoline in February. This estimate was 3.9 percent below the low shipments of last February.

Domestic Consumption . . . .

The domestic demand for gasoline, however, continues around 4 percent higher than a year ago. The Bureau of Mines estimate for February, 1940, was that amount above actual domestic demand in February, 1939, after making allowance for the extra leap-year day in the month.

Runs to Stills . . . . . .

Although crude runs to stills were 40,000 barrels a day lower in the week ended January 27 than in the previous week, they were 8 percent greater than the daily average runs in January of 1939. This increase was somewhat larger than justified by the rise meanwhile in over - all demand for petroleum products, as total requirements have been running about 6 percent higher than a year ago.

Light Fuel Oils . . . . . .

The withdrawal of gas oil and distillate fuel from storage in the week ended January 27 was in the large amount of 1,481,000 barrels, stocks having been cut to 27,407,000 barrels. They then were 16.5 percent smaller than at the corresponding time a year ago, whereas demand was running about 15 percent higher even before the current siege of cold weather.

Heavy Fuel Oils . . . . . .

In reflection of continued relatively brisk industrial activity, stocks of residual fuel oil were further reduced 1,567,000 barrels in the week ended January 27. They came down to 103,015,000 barrels, and then were 11.5 percent smaller than a year before, although demand for the heavy oils has been running more than 10 percent above the levels of a year ago.

Maintenance Electrical

PERHAPS nowhere in the working over of any pipe line equipment is the truth of the old adage "When in doubt, don't!" more applicable than in the care and maintenance of motors, generators, magnetos and other electrical apparatus.

If the pipe line staff includes an electrician, this chore is usually and quite properly delegated to him; but in the majority of stations, where the operating men are their own specialists, such work must be done by them or the unit in question torn out and shipped away for reworking. This last should always be done, if any breakdown of the windings is noted, as amateur winding without proper equipment is sure to bring a train of troubles, and may even endanger the station through a fire risk thus introduced.

Servicing of Magnetos

Whenever gas engines are used, there are magnetos to service. While it is perfectly possible for the station men to replace bearings, renew breaker elements and otherwise work over a magneto, due to the highly specialized types of testing apparatus required to locate any electrical or magnetic weakness or breakdown, it is economy to keep one or more spare magnetos on hand, and to substitute the spare for the faulty unit, sending it to the nearest accredited service shop for proper overhaul.

Dual ignition is generally included on the larger gas engines, but for maintaining them it is not necessary to provide two spare magnetos, one for right and one for left hand operation, as the half-time gear in most standard magnetos is marked for rotation in either direction, the only change needed being to reset the gear when lined at the mark corresponding to the direction in which it is being rotated so that the other of the two marked teeth or spots then coincides with the setting pin—care being taken to see that the shaft carrying the breaker mechanism does not shift during this operation.

Magnetos, in common with most electrical machinery, suffer more frequently from over-oiling than from a lack of lubricant. Too much oil attacks the insulation, finds its way to carbon pick-up and distribution contacts—especially on the high-tension side—and softens them so they soon form a continuous band of conducting material, thus completely blanking out the proper breaking points. This excess oil also aids in the collection of dirt and dust to induce excessive wear of such sliding action parts as breaker arm and cam.

Once a month, or at fortnightly periods, if in a hot climate or in especially dusty locations, is often enough to lubricate a magneto, and then much of the work can be done better with a straw or bit of fine wire to place a single, tiny drop of the proper lubricant carefully on the bearing surface, rather than to rely upon an oil can and chance over-oiling. Such points as the breaker arm bearing and the contact between arm and cam should be oiled and then as much as possible of the excess oil wiped off, leaving little more than a suspicion of lubricant adhering to the bearing surfaces.

Small ball bearings, such as are used on magneto shafts, should be sparingly packed with a good grade of soft grease—for which purpose the ordinary cup grease used around a station is *not* satisfactory. It is sufficient merely to coat the races with the grease, and longer and better service will be given if care is paid to this detail, rather than filling all interstices between balls and races with the lubricant. If this work must be done by the station men, both economy and longer service will be served by procuring a small supply of the grade of lubricant specified for the particular magneto used from the servicing shop, and then applied according to the magneto manufacturer's specifications.

In the absence of special lubricant, ordinary white vaseline—care being taken to secure the plain, not medicated vaseline—may be used to replace the oil on sliding contacts and for packing frictionless bearings. Before using vaseline, however, it is well to make a simple temperature test by exposing a small sample to the heat which will be encountered in service. If a pat of vaseline, formed to a cone, melts down when set upon the bracket which normally carries the magneto, it is not safe to use for lubricant.

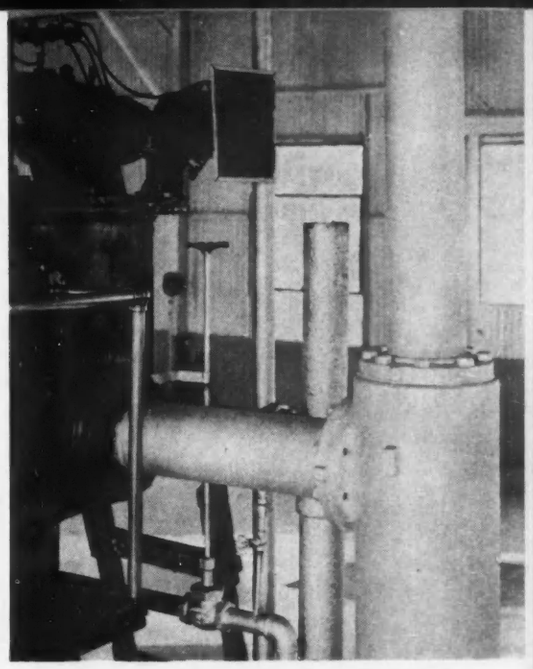
Much magneto ball bearing wear is due to the apparatus being exposed to unnecessary heat, which softens even the best grade of grease and makes it run or throw from the bearings. One pipe line, discovering this condition, devised a simple asbestos-faced shield which, mounted near the magneto, protects it from direct radiation from a nearby muffler and exhaust pipe—with resultant more than doubling of the useful life of the bearings in the exposed ends of the magnetos serving its engines.

Dust Harms Electric Motors

Motors driving centrifugal pumps, whether of the direct-current type, as commonly used when the station generates its own power, or of the more common alternating-current induction type, are subjected to a combination of dust- and oil-laden air which is especially severe on the insulation of the windings, and which even threatens to destroy the efficacy of the built-in fan cooling systems characteristic of this type of continuous service motors.

In one main line station it was noted that the motor driving the pump in the end of a line of eight similar units fouled more rapidly than any of the others. Study of the lay-out disclosed the fact that half the air exhausted by this motor's cooling system blew directly onto a section of the floor used as a walk by the station men whenever they traversed that end of the building, and that the dust and grit tracked in by them was thus kept agitated, contributing largely to its being picked up by currents of air entering the motor through the ports around the bearings, and thus

# of Pipe Line Equipment



Asbestos-faced shield cuts off heat radiated by exhaust and conserves magneto bearings.

accelerating wear and the formation of dirt masses on the windings.

Change of or even closing of the walkway through the station was considered, but neither course was necessary when a short duct of tin was fitted to this half of the motor and carried through a nearby pipe pit to a screened opening outside the building.

Must Watch Lubricants

Over-oiling of the high-speed bearings on most centrifugal pump motor drives is a common failing. The lubricant level in the ring- or chain-oiled bearings, when not running, is usually fixed by the motor manufacturer setting the top of the oil filler at a height where it will overflow if more than the proper amount of lubricant be added. But, if the oiler check this same sight feed when the motor is up to speed, the oil will be seen to rise only part, perhaps half way up the glass, and so he adds more oil.

This excess oil throws out along the shaft in a spray of fine droplets or mist, enters the current of air cooling the windings, and covers them at the nearer end with a film which serves to trap incoming dust particles; thus building up a coating which chokes air passages, retards cooling, and affords the oil contained therein ample chance to work into the rubber or other insulating materials and cause eventual electrical breakdown.

In extremely dusty locations it is economy to enclose the air ducts with tin and filter the incoming air, much as it is now almost universally cleaned for internal combustion engine use.

Cleaning Motors

Where oil and dust have combined to encrust the windings, there are a number of ways in which this material may be removed, most of them involving the use of inflammable solvents, and hence feasible only when proper and adequate precautions are observed. Carbon tetrachloride is perhaps the quickest and simplest of these solvents to use among the readily obtained cleaning agents. If the encrusted section be washed with this either by being sprayed on with a gun or applied with a brush, and then removed with compressed air—which *must* be dry before being blown into a motor—the underlying insulating surface is not attacked.

When using carbon tetrachloride, care must be taken to see that its fumes do not blow toward fire or any electrical equipment which is sparking, as an explosion is sure to result. Even with the job done in the open air, it is well to work with a gas mask, as the fumes are poisonous and if inhaled may cause sudden collapse. Notwithstanding the temporary fire hazard and nature of the fumes thrown off, carbon tetrachloride gets the motor clean quickly and well, with no permanent change in its windings or insulation.

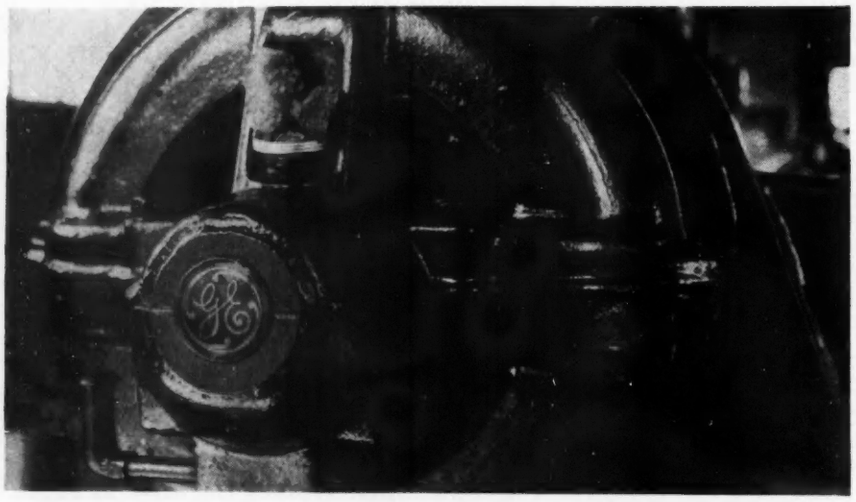
Alcohol may be used for winding cleaning, if desired, but is slower in action than the carbon tetrachloride, and also introduces a fire risk. Under no circumstances should gasoline be used for cleaning the windings of any electrical equipment, as it is a solvent for most insulation, softening and weakening its dielectric strength so that eventual electrical breakdown is but a matter of time.

Field, and sometimes main line pumping stations, are occasionally submerged by floods, and the motors filled with silt and mud. In such a case the best method of cleaning is to wash thoroughly, using warm, but never hot, water under moderate pressure to flow the dirt from the windings. After the washing job is done, the windings must be thoroughly dried before current is turned on. One pipe line company dried its motors after such a washing by enclosing them in a sheet iron jacket, and suspending motor and jacket over the exhaust pipe from one of its engines. The jacket served as short flue to conduct the heated air around and through the windings, care being taken to elevate the unit enough so that direct radiation was not sufficient to overheat the nearest point on the windings. When thus dried, warm air must be conducted through the windings for periods of 24 hours or more, to insure the removal of all moisture.

Other Electrical Trouble

Occasionally electrical equipment shows trouble which does not originate with it. An instance was a 175-horsepower compound-wound motor which persisted in intermittent sparking at the three collector rings. Polishing away of these spots was only a temporary measure, the burned sections reappearing almost immediately after burnishing, and indicating deep-seated trouble of some sort.

When a count of the number of burned spots on the rings was found to coincide with the number of teeth in the pinion on the motor shaft, the trouble was located. The pinion had worn to such an extent that proper and continuous tooth contact was no longer possible, and the jar imparted to the motor at each recurring tooth impact was enough to make the contacts vibrate and thus to cause improper current flow with consequent arcing and sparking at the rings. Re-



Blocking inlet ports in motor casting when unit faces long shut-down, as on stand-by service, keeps out mud-daubers and prevents air duct clogging.

placement of the worn gear by a new one completely eliminated the trouble and saved the cost of a motor overhaul—suggested as being the only remedy for the sparking when assumed to be caused by electrical weakness.

If a motor has been disconnected for cleaning or overhaul, it is imperative that it be replaced in such a manner that the rotor shaft be able to "float" or move endwise without binding or undue resistance if the bearings are to stand up under the high operating speeds required, especially on motors direct-driving centrifugal pumps. Before okehing such a replacement job, end play should be checked by moving the rotor endwise—first imparting rotation to insure minimum bearing friction — checking the travel in each direction when halted by zero clearance at some point.

Because of the demand for end-play any motor used to drive a helical or herringbone reduction gear must have a flexible coupling between motor and high-speed gear shaft, as otherwise, due to the crowding of the gear teeth forcing the train to revolve in a fixed plane, motor bearings will give trouble. Where the first drive is through spur gearing, and no end thrust bearing is provided, the form of the teeth and the type of contact permits slight lateral motion without cramp.

Stand-by Motor Inspection

Motors on stand-by service should be inspected regularly, and when set up in exposed places, should be adequately protected against the nesting habits of mice, mud-daubers and other insects which otherwise might completely block cooling passages and cause serious impairment of a motor if run in such a condition. One oil company blocks the ventilating ports of its stand-by motors with felt-edged wooden stops which are fitted to each opening and thus completely seal the interior of the motor from insect or vermin intrusion.

Oil switches should be checked at least annually for oil level and condition of the fluid. When run in damp locations, it sometimes happens that the switch and connected mechanism serves as a condenser for atmospherically borne moisture, and in the course of time enough water will enter the oil bath to raise its level above that desired, and at the same time expose the metal of the bath to possible corrosion and eventual leakage of its contents.

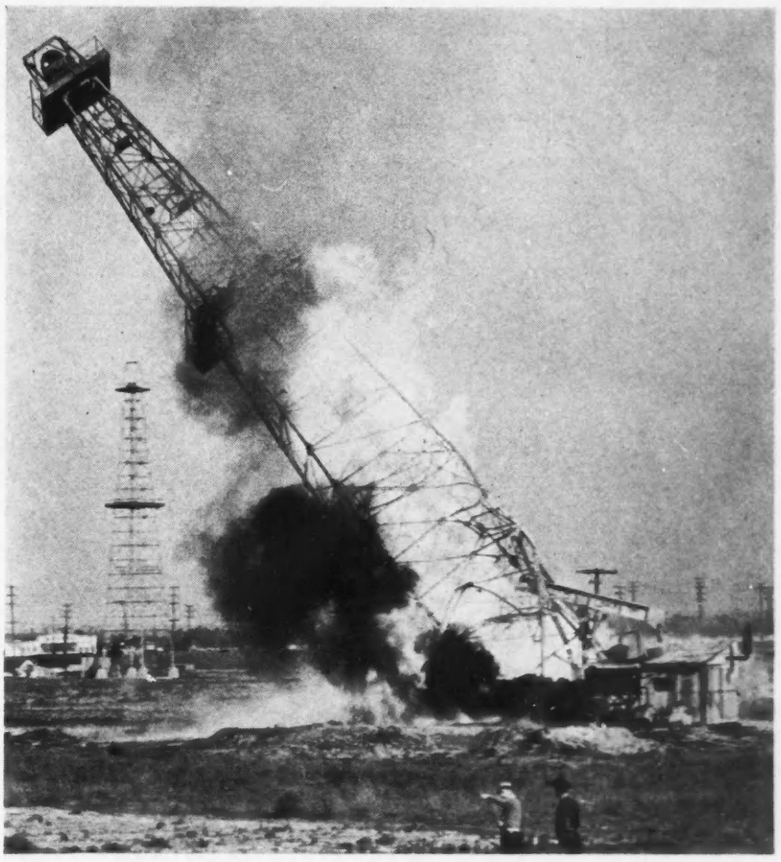
When the bath is dropped to check its level it should be set on a flat surface and the height of the oil surface carefully determined. If oil is to be added, it should be of the same grade and type as originally furnished by the manufacturer of the electrical equipment. Although sometimes used by mis- or uninformed station men, ordinary lubricating oil or even diesel oil is *not* suitable for oil switches, and when so used introduces a fire hazard as well as impeding the proper performance of the equipment.

When inspecting for oil level, the submerged portions — in normal operation, that is—should be wiped clean and examined for possible pitting. This, if found, indicates an acid condition of the oil and it should be discarded and new provided. The oil, if the contacts are found clean, should be examined for dust film. In many field locations dust forms and settles atop the oil in the bath, eventually forming an electrical conductor which permits flash-over, with damage to the equipment supposed to be protected. If the oil bath be allowed to settle for an hour or so after being lowered from its working position on the switch, the dust will collect on the surface, and may be skimmed off with a small bit of cardboard or a large spoon.

An annual overhaul, or more frequently in exposed or acid-reacting air—as around carbon black plants using sour crude—the contacts on all exposed knife switches should be thoroughly checked for corrosion around the pins and on contacting surfaces and if appreciably roughened should be discarded. Pitting, if permitted to remain, may lock a switch at the time when proper opening is imperative, or may act to prevent the prompt closing of a switch, with consequent delay in operation.

Both knife and contactors should be coated with soft grease—and again pure vaseline is excellent if not used where it may be washed off by rain—care being taken to insure that the first point of contact be coated, as most of the arcing at opening or closing the switch occurs at this section of the throw.

In working over any electrical equipment in the station, the man doing the job should be personally sure that not only is the switch controlling current to his job open, but that it is so blocked open that any other employe will instantly recognize that that special circuit is to be left "as is" until the man who blocked it off himself removes the block. As an additional precaution, a man working on station electrical equipment which is still connected to its service leads should wear rubber boots—rubber-soled shoes are inadequate due to the nails used to attach such soles and heels to the leather insole—and if possible have rubber gloves and work with tools having insulated handles. For the man who makes a mistake with the heavy current used to drive pump station equipment rarely lives to profit by his error.



The derrick falls. A scene at the site of Gough 12 in the El Segundo field a short time after the well blew out and caught fire.

Oil Field Ingenuity Conquers Tricky Blowout

AFTER one week of uncontrolled flow, a tricky blowout in the El Segundo, California, field was conquered; largely by practical oil field ingenuity.

On Saturday, January 13, at 1:15 p. m., Ohio Oil Company's A. S. Gough 12 got loose, and within a few minutes caught fire and burned the rig.

The well was making a large quantity of sharp sand, and blowing an estimated 50 to 60 million cubic feet of gas. Consequently, it cut away everything down to the landing base head in the cellar, 7 feel below the surface. After 48 hours of blowing wild through the 6⅝-inch casing, the tubing dropped and the well then proceeded to cut out the casing in the casing head, letting the pressure against the 11¾-inch surface casing. The valve on the casing outlet then cut out, permitting the well to flow out the side outlet as well as vertically through the 6⅝-inch casing. Extinguishing fire did not offer such a difficult job, and was snuffed out Monday morning with steam.

Connections Cut Away

However, an inspection of the cellar connections, as soon as things were sufficiently cooled to make it safe, showed everything to be in bad shape. Then began the tricky task of bringing the well, with its large gas and cutting sand flow, under control. With the cellar connections cut away this was not an easy operation.

Gough 12 is an old producing well. At the time it started its week of uncontrolled fury, gas from an upper sand was being used to repressure a lower horizon. Total depth of the well is 7411 feet with an oil sand a few feet above this depth. The Marsh gas sand was encountered at approximately 3825-40 feet. With a tubing packer set at 3844 feet, gas was being produced through the casing from the upper gas sand and was then injected downward through 2⅞-inch tubing to the oil sand at 7400 feet. The shut-in pressure was around 1450 pounds. The oil sand would not take any more gas, so

After the fire was extinguished and the steel debris removed, the well had little appearance of a man-made hole—looking more like a gas geyser that might have been the work of Mother Nature. Connections had been cut away seven feet below the surface.

compressors had been installed to force some of the gas into the formation at approximately 3000 pounds pressure when some of the tubing head connections failed, letting the well loose.

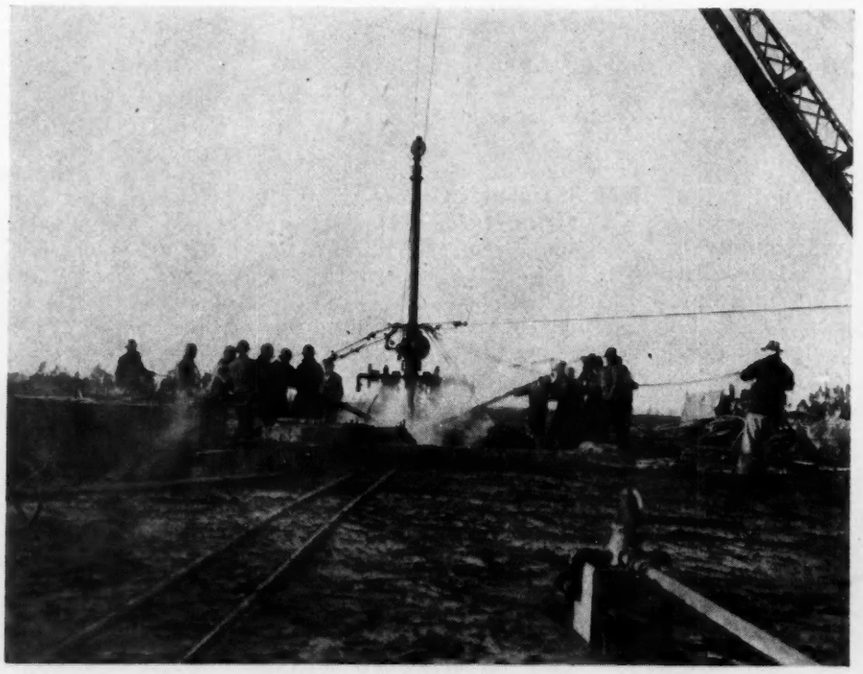
Fabricated Manifold

It was first decided to attempt to remove the top flange from the casing head and install a manifold. A manifold was made having a flange that matched the casing head, a 6 x 2 cross, and a 6-inch 6000-pound valve with a 7-inch stack above it to facilitate handling. All Monday night was spent in building this manifold, and it was delivered to the well at 3:30 p. m. Tuesday. Unfortunately, in the meantime the flange and packing on the casing head had been cut out by the sand, and all attempts to make a flange connection were abandoned. Then a 6⅝-inch by 4½-inch packer was installed on the manifold in place of the flange. An attempt was made to set this packer, but the pressure was too great.

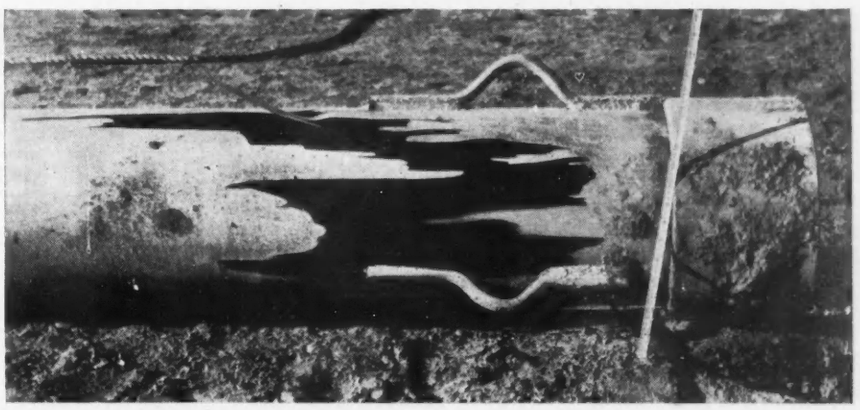
To prevent further cutting of the casing head and landing base, a 10-inch stack was placed over the cellar connections and left there until a new packer was obtained. Two trials were made Wednesday to set packers in the 6⅝-inch casing, but without luck. The pressure and cutting action was too great.

Special Packer Assembly

After another unsuccessful attempt on Thursday to set a packer, it was decided that a specially designed packer would be required because of the cutting action of the sand. Consequently, one was designed. For the mandrel a joint



The manifold was swung into proper position for snubbing with the aid of a crane and guide lines controlled by men.



The terrific cutting action of the large gas and sand flow is demonstrated here. This is a section of the 10-inch stack placed over the cellar connections until preparations could be made for another attempt at closing the well.

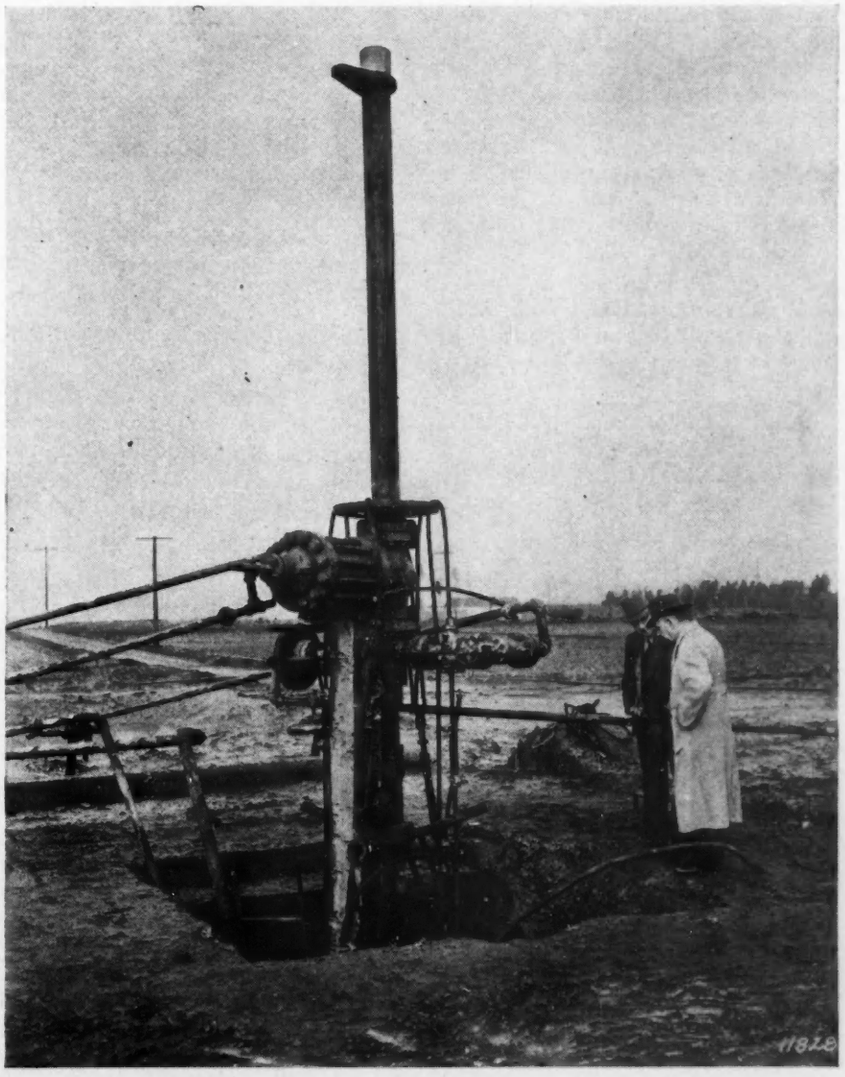
of 4½-inch O. D., 16.60-pound Grade D drill pipe was used. For the collapsing sleeve a joint of 5 9/16-inch, 22.20-pound drill pipe was used. These were threaded with a left-hand 5-Acme thread, using a bronze thrust ring above the topmost thimble. For packing, 3 packer rubbers were securely tied into place. The annular space between the outside of the 4½-inch and inside of the 5 9/16-inch drill pipe was filled with grease. A stuffing box was used on the top of the 5 9/16-inch to seal to the 4½-inch mandrel. Near the top of the 5 9/16-inch pipe a turning means was welded on. The 4½-inch drill pipe and packer assembly was approximately 20 feet long.

This special packer was delivered to the well at 4:10 p. m. Friday. It was immediately rigged up and snubbed into the 6⅝-inch casing without a great deal of trouble, as plenty of clearance had been allowed for it to go inside of the casing. The outside diameter of the packer was 5½ inches. The packer set okay at 5:10 p. m., and the manifold was tied down securely.

Well Controlled

At 6:25 p. m. the 6-inch pressure-operated valve was closed, using 1500 pounds pump pressure; and the well was shut in.

Thereafter, 480 barrels of 80-pound mud was pumped into the well and the entrapped gas was periodically blown off. At 2:30 Saturday morning, nearly a week after the well had gotten away, all was under control.



The well as it appeared after the manifold had been tied down securely and the control head closed. A happy conclusion to another oil field difficulty.

Natural Gas Industry All-Time Peak

By L. J. LOGAN, Associate Editor

NEW all-time records in customers, sales, production, and revenue are in prospect for the natural gas industry in 1940.

The marketed production of natural gas in 1939 approximated or exceeded the peak of 1937, and therefore, the indicated further gain presages the setting of a new record in 1940.

About 84 percent of all marketed natural gas goes into industrial and commercial uses, and demand for those purposes may be expected to increase further in 1940, as economists are generally agreed in the opinion that industrial activity in the United States will average at least 5 percent higher for the year.

Furthermore, domestic consumption, accounting for about 16 percent of all the marketed natural gas, regularly trends upward, along with consistent additions to the number of consumers, and maintenance of that trend appears assured by the favorable general business outlook.

Moreover, the weather appreciably affects sales to domestic consumers, and so far, 1940 has been colder than 1939, indicating larger demand in at least a part of this year.

Most Customers on Record

Natural gas companies in 1939 served 7,447,900 customers, according to a preliminary estimate of the American Gas Association, the largest number of consumers ever connected to the mains of the industry. That represented an increase of 216,900 or 3 percent, over the number of customers served in 1938, and was 441,900, or 6.3 percent, greater than the number served in 1937.

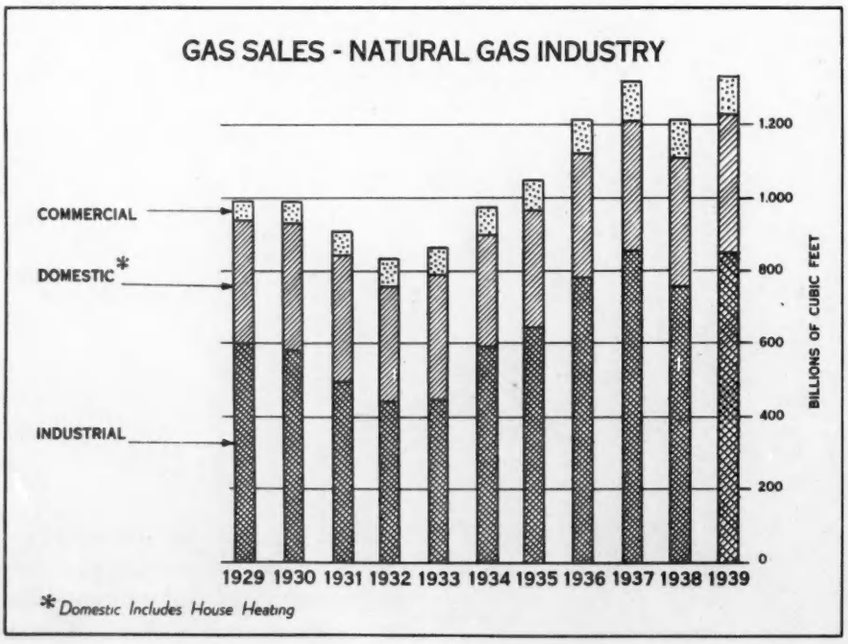
The increase in the number of consumers of natural gas in 1939 was the result of gains for each of the three main classes of consumers: domestic, commercial, and industrial.

Preliminary Estimates on the Natural Gas Industry for 1939

(Source: American Gas Association)

	1938	1939	Percent Change
Customers:			
*Domestic	6,665,000	6,860,400	+ 2.9
Commercial	524,000	543,900	+ 3.8
Industrial	42,000	43,600	+ 3.8
Total	7,231,000	7,447,900	+ 3.0
Gas Sales (Millions of cu. ft.):			
*Domestic	352,964	376,613	+ 6.7
Commercial	100,951	110,541	+ 9.5
Industrial	589,398	655,389	+11.2
Electric Generation	170,039	192,144	+13.0
Total Industrial & Electric Generation	759,437	847,533	+11.6
Total	1,213,352	1,334,687	+10.0
Revenue (Dollars):			
*Domestic	$242,658,000	$256,732,000	+ 5.8
Commercial	47,240,000	50,500,000	+ 6.9
Industrial and Electric Generation	126,682,000	141,841,000	+12.0
Total	$416,580,000	$449,073,000	+ 7.8

* Including house heating.



Having increased 2.9 percent from 1938, the domestic customers aggregated 6,860,400 in 1939, and commercial consumers increased 3.8 percent to a total of 543,900, while industrial customers gained 3.8 percent to 43,600.

Demand Great in 1939

Preliminary estimates indicate that the total marketed production of natural gas in 1939 may have exceeded the record quantity reported for 1937.

The American Gas Association has made estimates of the sales of natural gas in 1939 in the domestic, commercial, industrial, and electric generation fields, which account for about 53 percent of all consumption. These estimates indicated an advance to a new high for those uses, the indicated sales in 1939 having been 10 percent great-

Is Expecting Levels

er than those in 1938 and 1.5 percent larger than the previous record sales of 1937.

The total sales estimated by the association aggregated 1,334,687 million feet for 1939, as compared with 1,213,352 million feet in 1938 and 1,314,493 million feet in 1937.

Sales for domestic purposes such as cooking, refrigeration, house heating, and water heating, which constitute 16 percent of all sales of the industry, broke all previous records in 1939, having totaled about 376,613 million cubic feet. That quantity was 6.7 percent more than the 352,964 million feet sold in 1938 and nearly 5 percent more than the 359,294 million feet sold in 1937.

Sales to commercial consumers, which account for 5 percent of the industry's business, also set a new record in 1939. The estimated sales of 110,541 million cubic feet for the year were 9.5 percent greater than those of 100,951 million feet in 1938 and 7.7 percent larger than the sales of 102,654 million feet in 1937.

Industrial sales of natural gas, including those to electric generation plants, were estimated at 847,533 million cubic feet in 1939, a quantity 11.6 percent greater than that of 759,437 million feet reported for 1938 and almost as large as that of 852,545 million feet in 1937. Consumption of natural gas by the public utility electric power plants, representing 7 percent of the industry's output, again set a new record of 1939, as the use of electricity continued to increase. The 192,144 million feet sold to those plants constituted 13 percent more than the previous record volume reported for 1938. The sales for other industrial purposes, having totaled 655,389 million feet, were 11.2 percent greater than in 1938, although 3.9 percent smaller than in 1937.

Field and Refinery Use

The American Gas Association, in presenting the above figures, did not offer estimates on consumption at petroleum refineries, in the manufacture of carbon black, and for field development, including drilling, pumping, and operation of gasoline plants, which in the aggregate accounts for about 47 percent of all natural gas consumption. But circumstances indicate that new records may have been set in 1939 in some of those uses, particularly the field and petroleum refinery classifications, which constitute, respectively,

Summary of Natural Gas Statistics, 1938

(Source: Bureau of Mines)

STATE	PRODUCTION			CONSUMPTION									
				Domestic and Commercial			Industrial						
							Field (Drilling, Pumping, etc.)		Manufacture of Carbon Black		Fuel at Petroleum Refineries, Electric Public-Utility Power Plants, and Other Industrial Consumption		
	Millions of Cu. Ft.	Average Value at Wells per M Cu. Ft. (Cents)	Average Value at Points of Consumption per M Cu. Ft. (Cents)	Thousands of Consumers	Millions of Cu. Ft.	Average Value at Points of Consumption per M Cu. Ft. (Cents)	Millions of Cu. Ft.	Value at Points of Consumption (Thousands of Dollars)	Millions of Cu. Ft.	Value at Points of Consumption (Thousands of Dollars)	Petroleum Refineries	Electric Public-Utility Power Plants	Other Industrial	Value at Points of Consumption (Thousands of Dollars)*
Alabama	.....	...	....	31	1,812	94.4	.....	....	.....	....	.....	1,222	11,762	2,176
Arkansas	11,301	4.0	19.2	77	8,284	47.1	11,582	896	.....	....	3,585	1,770	9,612	1,885
California	315,168	6.9	28.0	1,631	85,100	75.3	132,223	8,952	.....	....	32,624	9,111	56,110	15,184
Colorado	1,904	3.7	24.4	103	6,740	74.8	253	12	.....	....	1	1,463	10,755	1,925
Georgia	.....	...	....	83	5,638	74.2	.....	....	.....	....	.....	4,400	4,745	1,556
Illinois	1,169	4.2	52.7	1,248	22,251	126.4	1,296	79	.....	....	20	2,195	40,738	8,785
Indiana	1,299	14.5	56.5	781	2,997	116.7	148	15	.....	....	569	10,153	12,839	4,845
Iowa	.....	...	....	130	5,234	96.6	.....	....	.....	....	.....	5,315	9,560	2,251
Kansas	75,203	4.3	36.5	227	23,537	50.4	16,464	1,179	†	†	2,937	15,463	†27,704	†5,945
Kentucky	46,163	12.2	42.3	178	9,989	55.1	1,444	183	.....	....	.....	.....	3,917	1,122
Louisiana	283,899	3.4	16.9	189	12,289	60.7	41,254	2,164	24,143	625	9,536	21,832	53,206	9,660
Michigan	10,165	9.6	62.8	545	17,269	114.1	2,109	202	.....	....	2	1	5,316	2,883
Minnesota	.....	...	....	149	5,421	96.7	.....	....	.....	....	.....	1,474	7,746	1,770
Mississippi	13,656	4.8	23.5	45	4,575	53.1	.....	....	.....	....	.....	1,436	6,774	1,051
Missouri	1,369	8.9	59.8	401	13,865	81.7	301	27	.....	....	.....	10,464	17,875	4,767
Montana	21,216	4.2	28.9	42	9,101	40.1	898	52	.....	....	383	696	7,147	1,208
Nebraska	.....	...	....	121	5,735	72.6	.....	....	.....	....	.....	3,963	7,841	2,028
New Mexico	50,706	1.6	15.2	25	2,718	59.2	19,475	383	.....	....	103	3,852	6,742	1,521
New York	39,402	14.5	49.3	432	17,696	81.6	237	35	.....	....	1,656	3,397	24,964	5,811
Ohio	35,257	16.8	49.8	1,273	67,420	59.6	1,004	189	.....	....	21	3,812	35,756	13,494
Oklahoma	263,164	2.0	10.4	266	26,551	41.9	165,884	4,503	†	†	8,203	11,310	†32,495	†4,515
Pennsylvania	76,547	18.2	38.6	724	42,567	60.5	4,744	1,126	.....	....	2,325	3,256	43,393	14,082
South Dakota	10	10.0	30.0	17	2,101	60.1	.....	....	.....	....	....	984	2,269	568
Tennessee	6	10.0	33.3	46	3,930	68.1	.....	....	.....	....	10	5,128	4,979	1,724
Texas	882,473	2.2	15.1	730	42,788	65.2	242,196	7,522	289,656	2,100	43,764	44,116	67,083	17,876
West Virginia	134,342	13.0	41.6	196	21,473	35.9	10,991	1,892	.....	....	448	83	24,483	5,663
Wyoming	26,678	3.1	18.2	23	4,379	40.1	6,652	212	†	†	3,538	855	†3,230	†843
Other	4,465	3.5	23.6	275	10,608	75.0	48	5	11,151	167	16	2,237	20,257	3,742
Total, 1938	2,295,562	4.9	21.8	9,338	482,068	68.3	659,203	29,628	324,950	2,892	109,741	169,988	548,147	138,713
Total, 1937	2,407,620	5.1	21.9	9,028	489,234	67.6	651,320	31,199	341,085	4,294	113,005	170,567	637,830	161,298

* Includes value of gas used at petroleum refineries and public-utility power plants.
† Gas used in manufacture of carbon black included under "Other" for United States total, and under "Other Industrial" for State total to avoid revealing figures of individual operators.

Natural Gas Is Used Extensively for Heating Homes and for Heat and Power Production in Factories

This table, showing United States consumption of natural gas, by types of use, in 1937 and 1938 was compiled from the latest annual reports on natural gas by the Bureau of Mines.

USE	1937		1938	
	Millions of Cubic Feet Consumed	Percent of Total	Millions of Cubic Feet Consumed	Percent of Total
Domestic	371,844	15	367,772	16
Commercial	117,390	5	114,296	5
Industrial:				
Field (drilling, pumping, operation of gasoline plants, etc.)	651,320	27	659,203	29
Manufacture of Carbon Black	341,085	14	324,950	14
Public Utility Electric Power Plants	170,567	7	169,988	7
Petroleum Refineries	113,005	5	109,741	5
Cement Plants	.....	...	37,336	2
Other Industrial Consumption	637,830	27	510,811	22
Total Industrial Consumption	1,913,807	80	1,812,029	79
Grand total, all uses	2,403,041	100	2,294,097	100

about 30 percent and 5 percent of total consumption.

Field consumption of natural gas was at a new high even in the recession year of 1938, in the face of a 16 percent decline in drilling and a 5 percent decrease in crude production; and it probably increased further in 1939, as drilling was maintained practically at the 1938 level, while crude oil production was up about 4 percent. Furthermore, 1940 probably will bring larger field consumption of gas than that in 1939, as increases in drilling and in crude production are anticipated.

Consumption at petroleum refineries was somewhat smaller in 1938 than in 1937, in reflection of curtailment of runs to stills. But the requirements of refiners doubtless were greater in 1939 than ever before, as crude runs through plants broke all previous records. Similarly, large runs to stills are indicated for 1940, as demand for petroleum products is expected to increase further.

Making Carbon Black

The use of natural gas for making carbon black, which accounts for about 14 percent of all natural gas used, was about 5 percent smaller in 1938 than in 1937, as sales of new automobiles and tires lagged. But 1939 brought a 40 percent increase in sales of automobiles and trucks and a material gain in demand for tires, with the result that more carbon black was needed and more natural gas was consumed in the manufacture of that product, although the motor vehicle sales still were substantially lower than in 1937. Moreover, it is conservatively estimated that automobile and truck sales will further increase 10 to 15 percent in 1940. About 55 percent of all carbon black made in the United States is used by the rubber companies, and over a third is exported. The domestic requirements may be fairly well foreseen, therefore, although the outlook for foreign demand has been obscured by the wars in Europe. These circumstances indicate that natural gas consumption in making carbon black may have been about the same in 1939 as in 1937, and that a similar or perhaps slightly larger consumption may occur in 1940.

Gas companies have stimulated demand for their product by inaugurating more favorable rates for house heating through central plant burners and equipment. They also are encouraging development of better and more efficient gas appliances and equipment, in seeking to enhance the competitive position of gas.

Gas Air-Conditioning

Increased recognition is being given to gas in the air-conditioning field, where control of humidity as well as temperature is required. The problem of the gas industry is to develop acceptance of gas equipment by the existing air-conditioning distribution outlets and further to assist them in obtaining public acceptance for this equipment. In order to obtain acceptance of gas-using equipment by the air conditioning trade, it is believed, an organized campaign of engineering education must eventually be addressed to the air-conditioning industry by the gas industry.

Commercial Use Grows

The use of gas for commercial and industrial purposes throughout the country is growing rapidly. New outlets are presenting themselves in this branch of the industry. Recent marked changes in materials which go into dwelling structures calling for more use of structural steel, glass, brick, synthetic stone, metalized wood, fabricated steel, and concrete in home construction are resulting in correspondingly greater demand for use of gas in the production of those products.

In the field of industrial utilization new processes have been developed and more efficient equipment has come into general use. For example, a few years ago there was a distinct trend in the larger newspaper offices of the country toward metal melting by electricity for stereotyping and other purposes. But methods have been developed resulting in general acceptance of gas heat for these purposes.

For the fourth consecutive year, the gas industry has sponsored a national cooperative advertising program, the objective of which is the promotion of gas as the modern, efficient fuel for household, industrial, and commercial purposes.

Less Natural Gas Used in 1939 in Production of Natural Gasoline

This table is based on U. S. Bureau of Mines figures.

YEAR	Number of Natural Gasoline Plants	Natural Gas Processed (Millions of Cubic Feet)	Natural Gasoline Production (Thousands of Gallons)	Average Yield of Gasoline per 1,000 Cubic Feet of Gas Processed (Gallons)
1911	176	2,476	7,426	3.000
1912	250	332	12,081	2.577
1913	341	9,889	24,061	2.433
1914	386	16,895	42,653	2.525
1915	414	24,064	65,365	2.716
1916	596	208,705	103,493	0.496
1917	886	429,288	217,884	0.508
1918	1,004	449,109	282,536	0.629
1919	1,191	480,404	351,535	0.732
1920	1,154	496,431	384,744	0.775
1921	1,056	479,618	449,934	0.938
1922	917	545,139	505,832	0.928
1923	1,067	875,711	816,226	0.932
1924	1,096	1,016,276	933,861	0.919
1925	1,080	1,040,369	1,127,437	1.084
1926	1,101	1,206,275	1,363,057	1.130
1927	1,118	1,341,233	1,641,125	1.224
1928	1,077	1,473,414	1,814,008	1.231
1929	1,086	1,959,267	2,233,653	1.140
1930	1,034	2,088,748	2,210,455	1.058
1931	936	1,790,094	1,831,886	1.023
1932	829	1,499,737	1,523,775	1.016
1933	778	1,551,444	1,419,975	0.915
1934	766	1,776,172	1,535,360	0.864
1935	715	1,822,000	1,651,986	0.910
1936	700	1,815,000	1,796,340	0.99
1937	696	2,108,800	2,065,400	.98
1938	*	‡2,100,000	2,113,314	†1.0
1939	*	‡2,075,000	¶2,086,700	†1.0

* Data not available.
† Approximate.
‡ Estimate.
¶ December estimated.

Economics of Well Spacing

By DR. IONEL I. GARDESCU
Gardescu and Speed, Consulting Petroleum Engineers and Geologists
Houston, Texas

A TEXAS Railroad Commission hearing is called to weigh arguments for the proposed well spacing program of a field. Engineers and operators testify that a density of one well to 20 acres will be sufficient to prevent physical waste while experts for the lease and royalty owners testify to the contrary.

Why 20 acres? How much waste is prevented by a 20-acre-per-well spacing as compared to a 25- or 15-acre-per-well spacing? This is one of the great mysteries of production engineering that baffles not only the layman but also the most expert engineer.

Any kind of a flow requires an expenditure of energy that is consumed through frictional resistance. This loss of energy is a "physical waste." If a man has to carry a pile of stones from one place to another he has to use up some energy. He may take too big a load or too small a load on each trip and thereby contribute to waste. In other words, there is a happy medium in between where the man may move the load from one place to the other with a minimum expenditure of energy and a minimum waste of time. It is a similar minimum that guides the engineers in their search for a most efficient development of an oil field.

The size of the load taken on each trip is the rate of production of the field and of the wells. Too heavy withdrawals of oil from a field would result in waste of energy. Too small a withdrawal also will result in waste because it would leave dormant energy that could and should have been utilized in the efficient and profitable recovery of oil. The rate of production of individual wells also enters into the picture because it is well known that excessive rates of production would cause waste of energy in the area surrounding the producing well, though the rate of recovery for the field as a whole may not be excessive.

In addition to the loss of oil production through dissipation of reservoir energy there also may be a loss of production due to the trapping of the oil as a result of either geological conditions of the reservior or through the by-pass of water or gas.

Therefore, the economics of well spacing should be considered under two separate groups:

(A) Fields in which the spacing of wells, within certain limits, does not affect the ultimate recovery of oil, and

(B) Fields in which the spacing of wells does affect the ultimate recovery of oil.

Under the first group we shall differentiate between (1) Fields operating without restrictions of spacing and production, and (2) fields which are regulated by a spacing and production program.

The present paper will discuss only the economics of well spacing under group A-1 and the geological and production data. A Gulf Coast field familiar to the writer, will be used as a basis for computations. As much as possible, the data given in this paper will be based on actual facts. However, some assumptions have to be made either because the actual facts are not fully known or because the actual data would complicate our analysis beyond the scope of this paper.

The field has been produced under varying conditions of competitive drilling and production. An area to the north of the field was drilled to a density of 7.2 acres per well whereas another area to the southeast was drilled to a density of less than 1 acre per well. The ultimate recovery of the area to the north was 1046 barrels per acre-foot of effective sand and to the southeast 1089 barrels per acre-foot of effective sand, the difference between the two ultimate recoveries being only 4 percent.

The production record of the two areas shows in each instance a primary or flush stage of production and a settled or secondary stage of production. Each of the two areas produced during the primary stage approximately two thirds of the ultimate oil or 700 barrels per acre-foot, the remaining 350 barrels per acre-foot being recovered during the secondary stage of production.

The period of primary recovery was seven years in the northern area drilled with a density of 7.2 acres per well and only two years in the southeastern area drilled with a density of one acre per well. The period and the rate of production of secondary recovery was the same for both areas.

With regard to the relationship of the period of primary recovery to well density, the only two actual values available are the two figures appearing in the preceding paragraph. However, an analysis of the relationship shows that a very large number of wells drilled per unit area would result in a very small period of primary recovery whereas a very small number of wells drilled would result in a very large period. This relationship is of a hyperbolic nature and therefore may be expressed by a straight line on logarithmic paper, the line passing through the two available points as shown in Figure 1.

The average initial well production was 15,000 barrels per month. It will be assumed for the purpose of simplifying our calculation that all the wells

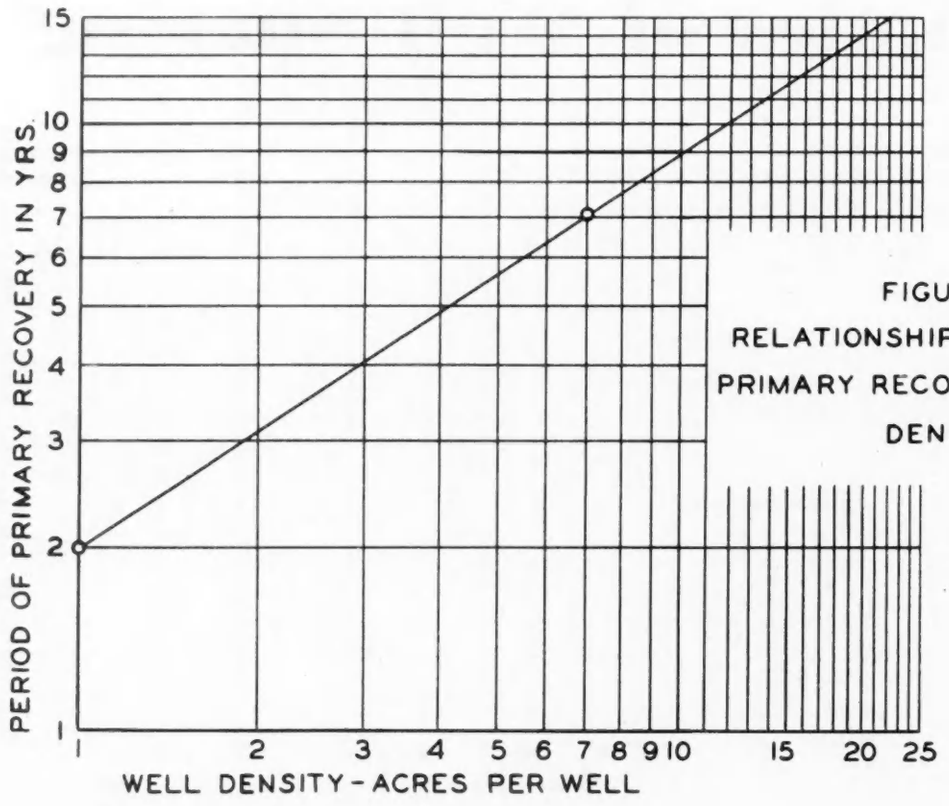


FIGURE NO. 1
RELATIONSHIP OF PERIOD OF PRIMARY RECOVERY TO WELL DENSITY

had an equal initial production and that all the wells were drilled at the beginning of the producing life of the field. Neither one of the two assumptions corresponds to the actual conditions, but considering the purpose of this paper, which is comparing one area to the other, and the actual facts which do show that the two areas had about the same drilling rate and the same average initial, the basis of the assumption seems reasonable. To go into the actual details of well performance would tend to limit the scope of this analysis.

Another assumption to be made is that the decline of production during the primary stage will be a constant percentage decline and therefore the production data will show a straight line trend when plotted on semi-log paper, which could also be expressed by a straight line rate-cumulative decline. This assumption is justified by the average production record of the wells. The average thickness of the sand is approximately 200 feet in both areas.

It has been shown that the recovery per acre-foot of the two areas was practically the same and the calculations may be based on an acre-foot basis. However, the acre-foot unit is awkward and instead we shall use, for the purpose of comparison, an area of 50 acres with a sand thickness of 200 feet, which will in no way alter the results of the calculations.

The relationship of well spacing to the period of primary recovery, shown in Figure 1, follows:

Period of Primary Recovery in Years	Well Density Acres per Well	Total Number of Wells on 50 Acres Area
2	1.00	50
3	1.85	27
4	2.90	17
5	4.10	12
6	5.50	9
7	7.00	7
9	10.00	5
13	17.00	3

The initial monthly well production is 15,000 barrels. The monthly well production at the end of the year would be $15{,}000 \times R$, where R is the annual rate of production decline. At the end of the second year the monthly well production would be $15{,}000 \times R^2$ because of the assumed constant rate of decline.

The average monthly well production during the first year will be

$$\frac{(15{,}000 + 15{,}000\ R)}{2}$$

The average monthly well production during the second year will be

$$\frac{(15{,}000\ R + 15{,}000\ R^2)}{2}$$

The average monthly well production during the n-th year will be

$$\frac{(15{,}000\ R^{n-1} + 15{,}000\ R^n)}{2}$$

(Equation 1)

[*Continued on page 24*]

COMPUTATION OF PRESENT VALUE OF OIL ON THE BASIS OF 200 FEET OF SAND
DATA USED

Area of producing unit	50 acres
Sand thickness	200 feet
Ultimate recovery per acre-foot	1,050 bbls.
Total ultimate recovery	10,500,000 bbls.
Primary recovery (2/3 of ultimate)	7,000,000 bbls.
Secondary recovery (1/3 of ultimate)	3,500,000 bbls.
Well density	Variable
Primary production behavior at constant rate of decline.	
Initial monthly well production	15,000 bbls.
All wells drilled at beginning of development	
Price of oil	$1.25
Lifting cost of oil	.25
Annual discount factor for deferred returns	6%
Cost of well	$30,000.00

Cooper-Bessemer G-AW Twin-cylinder Horizontal Gas Engine equipped with TIMKEN Bearings on the crankshaft powering oil line pumps in the Olney, Illinois, field.

"MILES OF SMILES" AS THE OIL FLOWS ON

Tapered Roller TIMKEN BEARING EQUIPPED

THE SYMBOL FOR MILES OF SMILES

Twenty-four hours a day—every day in the year—oil line engines are expected to keep the crude oil flowing. Hence, Timken Bearing Equipped crankshafts are vitally important features of their construction.

TIMKEN Bearings keep crankshafts turning smoothly and steadily; protect them against radial, thrust and combined loads and hold them in constant alignment. They thus contribute to greater efficiency, dependability and low maintenance cost. "Miles of Smiles" all along the line!

When selecting new engines of any kind—gas, oil or steam—you'll find it pays to give preference to those that are Timken Bearing Equipped.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN

TAPERED ROLLER BEARINGS

Manufacturers of TIMKEN Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; TIMKEN Alloy Steels and Carbon and Alloy Seamless Tubing; and TIMKEN Rock Bits.

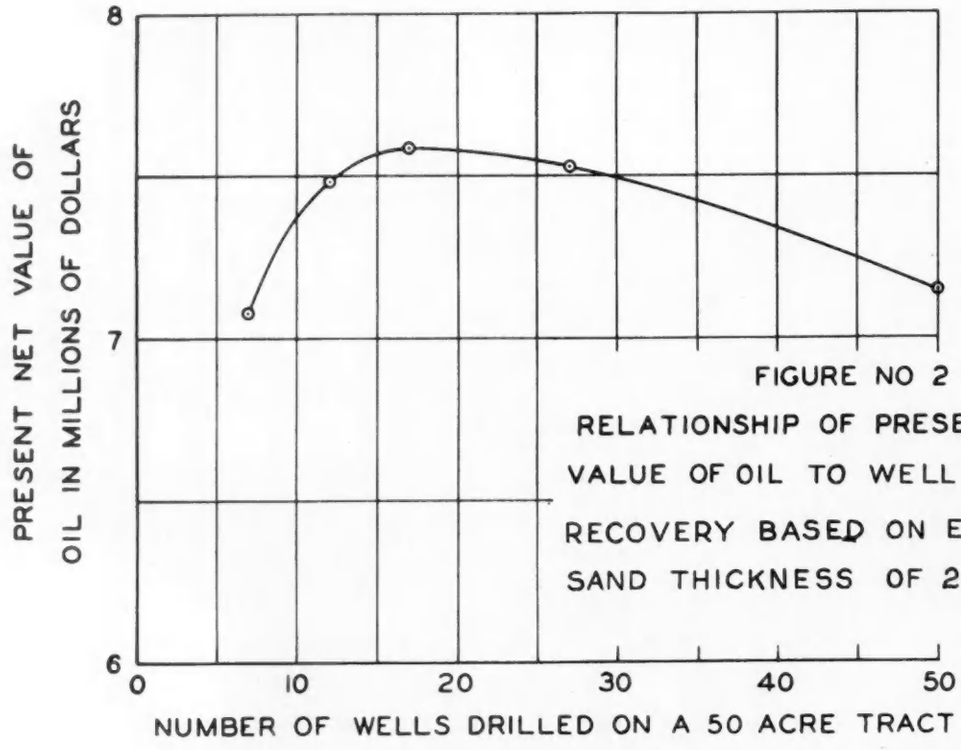


FIGURE NO 2

RELATIONSHIP OF PRESENT NET VALUE OF OIL TO WELL DENSITY. RECOVERY BASED ON ESTIMATED SAND THICKNESS OF 200 FEET.

[*Continued from page 22*]

The annual well production will be 12 times the average monthly well production, or

$$6 \times (15{,}000\ R^{n-1} + 15{,}000\ R^{n})$$

(Equation 2)

The annual production of the area will be equal to the annual well production times the number of wells W, or

$$W \times 6 \times (15{,}000\ R^{n-1} + 15{,}000\ R^{n}) \text{ or}$$
$$15{,}000 \times W \times 6 \times (1 + R) \times R^{n-1}$$

(Equation 3)

The total primary production of a well will be equal to the sum of the annual well production to the end of the n-th year of the primary production period, or

$$T_w = 6 \times 15{,}000 \times (1 + R) \times (1 + R + R^2 + R^3 \ldots + R^{n-1})$$

The above total well production multiplied by the number of producing wells will be equal to the total primary production of the area. The primary recovery of the 50-acre area which forms the basis of these calculations is 7,000,000 barrels. The value of "n" or the period of primary recovery may be read from the graph shown in Figure 1 for any chosen well density. Therefore, it is possible to solve the above equation for the value R in terms of any given well density.

For instance, on a well density of 7.2 acres per well the number of wells drilled on 50 acres will be slightly below seven. Figure 2 shows that for a density of 7.2 acres per well the period of primary production will be seven years. It follows that the total primary production of the area which is equal to 7,000,000 barrels may be expressed as follows:

$$7{,}000{,}000 = 7 \times 6 \times 15{,}000\ (1+R)\ (1+R+R^2+R^3+R^4+R^5+R^6)$$

(Equation 4)

The solution of equation (4) is:

$R = .935$ which is a 6.5% annual decline.

Substituting the values of R, W and n in equation (3) the annual production of the area is:

Year		Production
1	15,000 x 7 x 6 x (1+ .935) =	1,219,000 bbls.
2	15,000 x 7 x 6 x (1+ .935) x .935	1,049,000 bbls.
3	15,000 x 7 x 6 x (1+ .935) x $.935^2$	1,066,000 bbls.
4	15,000 x 7 x 6 x (1+ .935) x $.935^3$	997,000 bbls.
5	15,000 x 7 x 6 x (1+ .935) x $.935^4$	932,000 bbls.
6	15,000 x 7 x 6 x (1+ .935) x $.935^5$	871,000 bbls.
7	15,000 x 7 x 6 x (1+ .935) x $.935^6$	815,000 bbls.
		Total 7,040,000 bbls.

It may be readily seen that the above sums represent equation (4). The difference in the total of 40,000 barrels or ½ of 1 percent is due to slide-rule calculations.

The present value of primary production of the 50-acre area, drilled with a density of 7 acres per well, based on a price of oil of $1.25, a lifting cost of $0.25 and a 6 percent discount factor for deferred returns will be:

Production	Discount	Value
1,219,000 bbls.	.97	$1,182,000
1,140,000 bbls.	.92	1,049,000
1,066,000 bbls	.86	917,000
997,000 bbls.	.82	818,000
932,000 bbls.	.77	718,000
871,000 bbls.	.73	636,000
815,000 bbls.	.68	554,000
7,040,000 bbls.		$5,874,000

The total secondary recovery of the area, as previously shown, is 3,500,000 barrels. The life expectancy of this production averaged 18 years. The value of the secondary recovery on the basis of $1.00 net per barrel of oil and a 6 percent discount factor applied at the middle of the period of secondary recovery or nine years plus the seven years representing

SEALS AGAINST LOSSES FROM LEAKS

New LEAKPROOF

COUPLING FOR U.S. ROTARY HOSE

THE GREATER THE PRESSURE, THE TIGHTER THE SEAL! BUILT-IN AS INTEGRAL PART OF HOSE!

- Revolutionary coupling principle.
- Streamlined, and permanently sealed against leakage.
- Hose and coupling perfectly balanced under full pressure.
- Increased fluid areas assure full flow.
- New method of anchoring coupling minimizes stress on hose.
- No flanges, clamps, nozzles, bolts, nuts, hydraulic nipples, or other gadgets.
- Easy to connect and maintain.
- Eliminates losses and shutdowns caused by leaks.
- Coupling made of toughest alloy steel. Complete fittings weigh less.
- Performance proven *in advance,* in laboratory, and in field.
- Tested at Factory, at pressures in excess of those encountered in actual service.

★ ★ ★

- Hose has great strength... more than enough for *all* drilling pressures.
- Hose remains flexible under all drilling pressures.
- Hose readily assumes natural position on rig.
- Reinforced ends.

Made, tested, and backed by United States Rubber Company, famous for Rotary Hose, and other oil field products.

AVAILABLE IN BOTH FAMOUS BRANDS:

U.S. MATCHLESS
U.S. PEERLESS
ROTARY HOSE

United States UNITED STATES RUBBER COMPANY US TRADE MARK **Rubber Company**

1790 Broadway New York, N. Y.

Service Beyond Price and Specifications

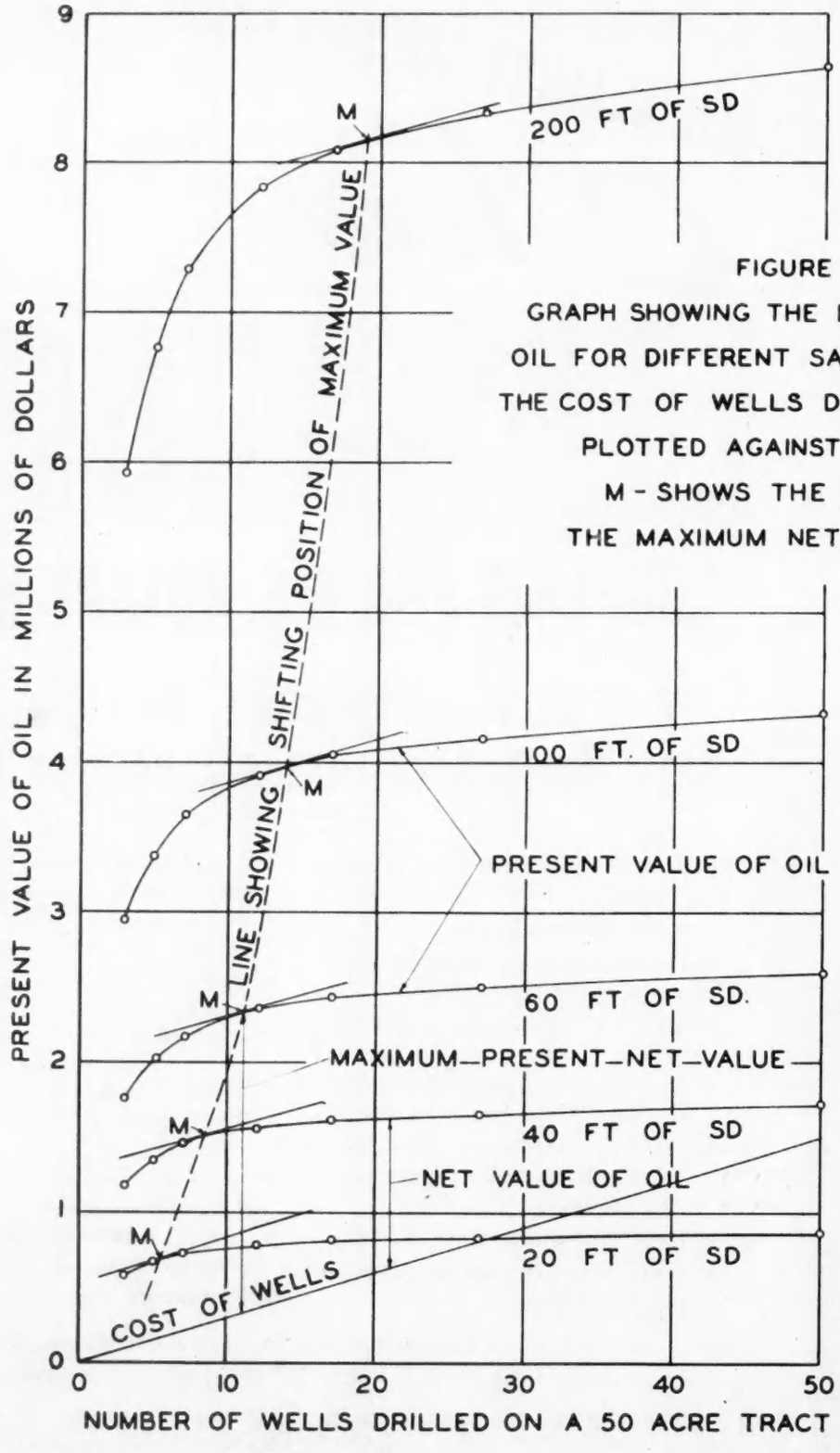

PRESENT VALUE OF OIL IN MILLIONS OF DOLLARS
NUMBER OF WELLS DRILLED ON A 50 ACRE TRACT
200 FT OF SD
100 FT. OF SD
60 FT OF SD.
40 FT OF SD
20 FT OF SD
M
SHIFTING POSITION OF MAXIMUM VALUE
LINE SHOWING
PRESENT VALUE OF OIL
MAXIMUM-PRESENT-NET-VALUE
NET VALUE OF OIL
COST OF WELLS

FIGURE NO 3

GRAPH SHOWING THE PRESENT VALUE OF OIL FOR DIFFERENT SAND THICKNESSES AND THE COST OF WELLS DRILLED, BOTH BEING PLOTTED AGAINST WELL DENSITY

M - SHOWS THE POSITION OF THE MAXIMUM NET VALUE OF OIL

the period of primary production, or a total of 16 years, is:

Production	Discount	Value
3,500,000 bbls	.4055	$1,419,000

The discount value of the ultimate oil production of the 50-acre tract will be $7,293,000 less the cost of drilling seven wells at $30,000 per well, or a net value of $7,083,000.

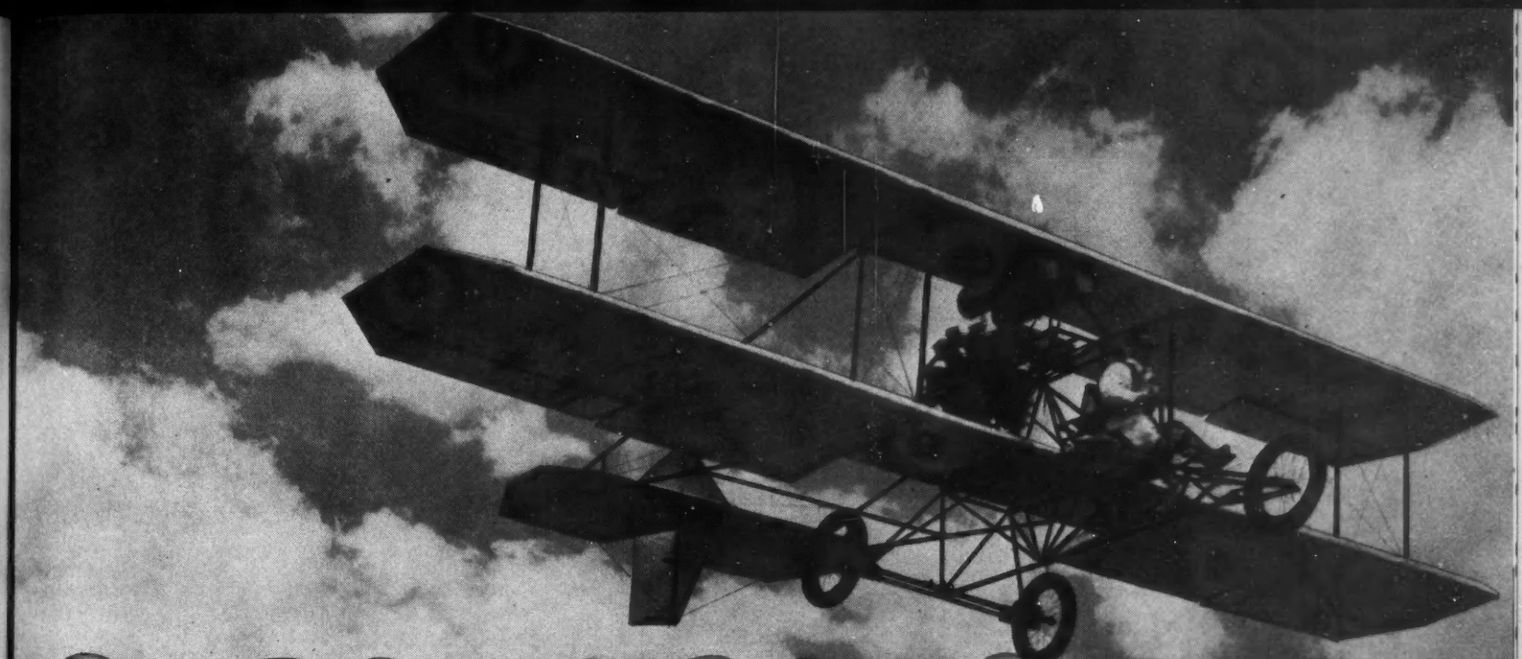
The values shown in Table 1 are similarly obtained and show the net value of the ultimate recovery of the 50-acre area drilled on various spacing programs.

Table 1 shows a maximum present value of $7,582,000 corresponding to a well density of 17 wells for the 50-acre area, or nearly 3 acres per well. A more accurate estimate of the most economic well spacing may be obtained by drawing a curve through the present net values as shown in Figure 2 and determining the maximum value from the graph.

The above computations show that neither the well density or one acre per well prevailing in the southeastern area of the field nor the density of 7 acres per well prevailing in the northern area was the most efficient spacing, resulting in a maximum net value of the oil.

Computation of Present Value of Oil on the Basis of 20 Feet of Sand

In the following computation it will be shown that the most economic well spacing of the field would not have been one well to three acres had the physical conditions of the reservoir been different. The physical conditions of the reservoir may be theoretically changed in many ways but for the purpose of the argument let us maintain the original facts with the exception of a reduction of the sand



SUCKER RODS

have improved, too!

Triple heat-treatment makes them stronger, tougher, more dependable

THIS old "crate" had all it could do to lift itself and pilot off the ground. Heavy loads were out of the question. But airplane designers and engine builders learned how to get greater strength with less weight through the full heat-treatment of steel parts.

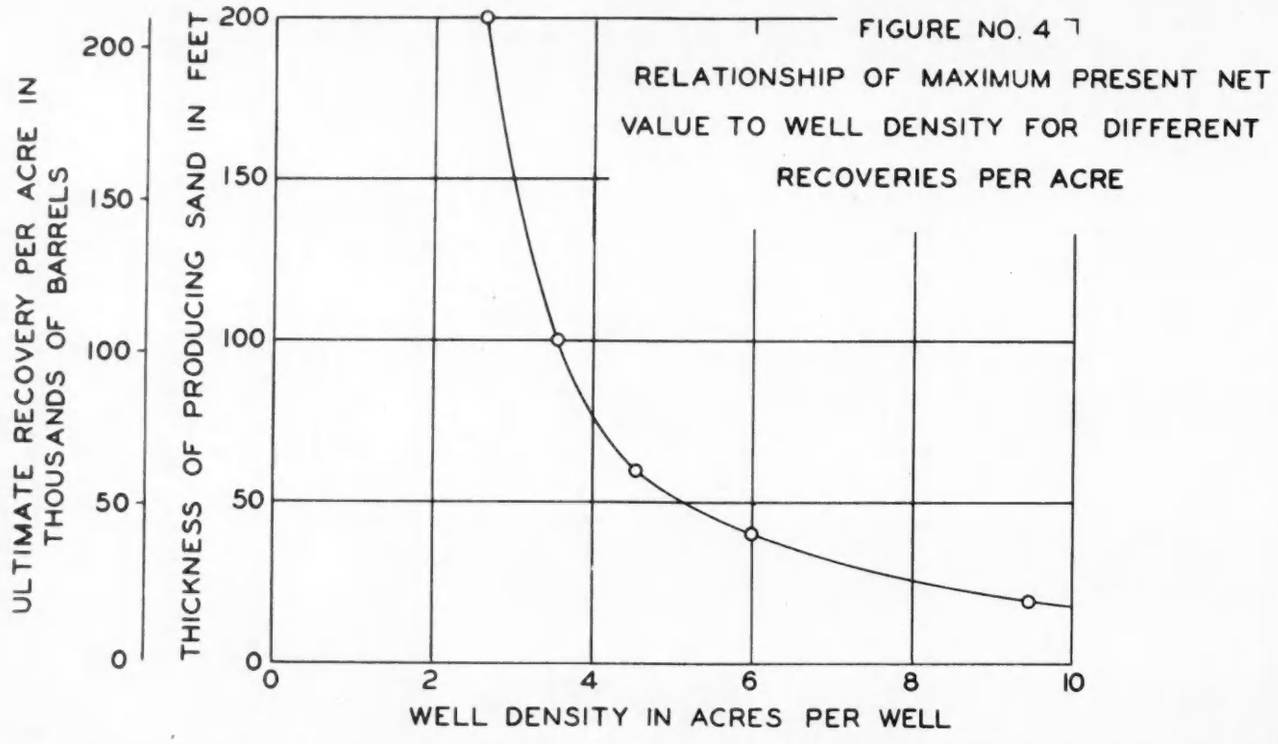
"Oilwell" uses the same method to produce stronger sucker rods of small diameter for heaviest loads. Heat-treatment only on the ends of the rods was not enough. "Oilwell" Sucker Rods for the heaviest loads are triple heat-treated *—normalized, quenched and drawn over their entire lengths.* Inquire at the nearest "Oilwell" store or office for details.

OIL "WELL" SUPPLY COMPANY

Branch Stores in All Oil Fields

"Oilwell"

Subsidiary of United States Steel Corporation



thickness from 200 feet to 20 feet. The change in sand thickness would necessarily cause a change in rate of production and total recovery of oil per acre, and it is assumed that both of these will also be reduced in the same ratio of 10 to 1. The following assumed values will therefore be substituted in our computations:

DATA USED

Area of producing unit.....50 acres
Sand thickness .....20 feet
Ultimate recovery per acre-foot.....1050 bbls.
Total ultimate recovery.....1,050,000 bbls.
Primary recovery (2/3 of ultimate).....700,000 bbls.
Secondary recovery (1/3 of ultimate).....350,000 bbls.
Well density .....Variable
Primary production behavior at constant rate of decline
Initial monthly well production.....1,500 bbls.
All wells drilled at beginning of development
Price of oil.....$1.25
Lifting cost of oil..... .25
Annual discount factor for deferred returns.....6%
Cost of well.....$30,000

The relationship of well spacing to the period of primary recovery remains as shown in Figure 1.

An examination of equation (4) shows that the value of R is not changed by reducing the total primary recovery of 7,000,000 barrels to 700,000 barrels and the initial monthly production of 15,000 barrels to 1,500 barrels.

The annual production of the 50-acre area with 20 feet of sand will be 10 percent of the computed value of the same area with 200 feet of sand, as shown by equation (3). The net value of the oil on the basis of 20 feet of sand is shown in Table 2.

TABLE 1

Showing present value of area drilled with various well densities, on the basis of an estimated sand thickness of 200 feet.

Period of Primary Recovery	No. of Wells	Discounted Value of Primary Recovery	Discounted Value of Secondary Recovery	Cost of Wells	Present Net Value
2 years.....	50	$6,750,000	$1,899,000	$1,500,000	$7,149,000
3 years.....	27	6,540,000	1,792,000	810,000	7,522,000
4 years.....	17	6,402,000	1,690,000	510,000	7,582,000
5 years.....	12	6,244,000	1,595,000	360,000	7,479,000
7 years.....	7	5,874,000	1,419,000	210,000	7,083,000

Table 2 shows a maximum present value of $527,100 which corresponds to a well density of five wells for the 50-acre area or 10 acres per well.

It has been assumed hereinabove that the initial well production remains the same as the area of drainage of a well is varied. That assumption is not entirely correct and one is to expect a higher initial and a higher rate of production for wells drilled further apart. Thus the values shown in Table 2 should be increased for the lesser well densities which would shift the maximum value of net returns toward a wider spacing than the 10 acres per well calculated above.

Table 3 shows the present value of the oil on the basis of various assumed sand thicknesses.

Figure 3 shows the five curves representing the present value of oil shown in Table 3 and the straight line representing the cost of wells. The vertical distance between the straight line and each of the curves represents the present net value of the oil. This distance shows a maximum for each curve at the point marked M. The position of the maximum value is determined by drawing a tangent to each curve parallel to the line representing the cost of wells. A dashed line drawn through the position of the maximum present values of the oil for various assumed sand thicknesses is also shown.

The relationship of the maximum present value

TABLE 2

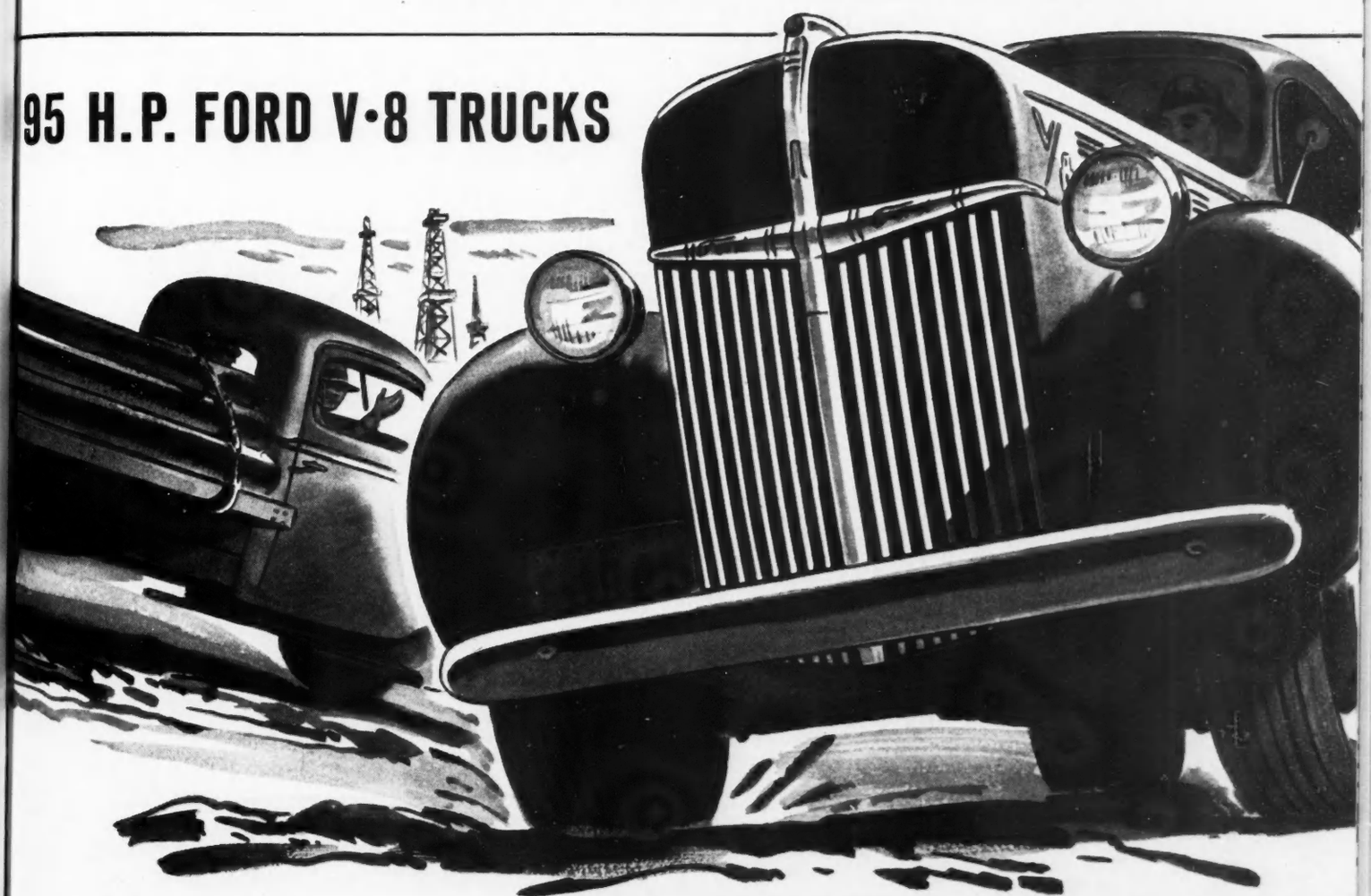
Showing present value of area drilled with various well densities, on the basis of an estimated sand thickness of 20 feet.

Well Density Acres per Well	Total No. of Wells	Discounted Value of Primary Recovery	Discounted Value of Secondary Recovery	Cost of Wells	Present Net Value
1	50	$675,000	$189,900	$1,500,000	Deficit
2	27	654,000	179,200	810,000	$23,200
3	17	640,200	169,000	510,000	299,200
4	12	624,400	159,500	360,000	423,900
7	7	587,400	141,900	210,000	519,300
10	5	550,800	126,300	150,000	527,100
17	3	492,500	100,100	90,000	502,600

A powerful answer

TO OIL-FIELD HAULING!

95 H.P. FORD V·8 TRUCKS



FEATURES OF FORD V-8 TRUCKS AND COMMERCIAL CARS

Range of 6 wheelbases and 3 engine sizes (60, 85, 95 h.p.) . . . 42 body and chassis types . . . Big hydraulic brakes . . . Full-floating rear axle in trucks (¾-floating in Commercial Cars) . . . New type drive system and two new longitudinal springs in front on regular trucks . . . Semi-centrifugal clutch . . . Improved, stronger cabs, more comfortable seats . . . Increased engine and chassis accessibility in trucks . . . Straddle-mounted driving pinion . . . Needle roller-bearing universal joints on all trucks . . . New, impressive styling . . . Sealed-beam headlamps . . . Large payload space . . . Ford low operating costs . . . Ford low upkeep costs with factory exchange parts plan.

IN hauling capacity, in flexible V-8 power, in proved economy of operation, you will find these 1940 Ford 95 h.p. V-8 trucks ideal for oil-field hauling. They have the stamina to stay on the job day after day with no let-up. Time-proved, money-saving economies mean lower hauling costs all along the line! There is a 95 h.p. Ford V-8 truck in the wheelbase and body type you need—test it on your job today. Prove to yourself that for modern oil-field hauling at its best, you'll haul more in less time at less cost with Ford V-8 trucks on the job!

FORD V·8 TRUCKS

of the oil in terms of well spacing and sand thickness or ultimate recovery per acre is also shown on Figure 4. This relationship is exactly the same as shown in Figure 3 except for the form in which it is presented.

Economic Spacing as Affected by Rate of Deferment

Another factor to be considered in determing the maximum present value of oil is the rate at which future earnings are discounted. At present, money can be secured for the right kind of an oil property at 5 percent per year interest. Twenty years ago I felt justified to use a discount factor based on 8 percent or even 10 percent per year compounded interest. An annual deferment of 6 percent may be considered a fair basis for computing the present value of oil for a small operator. Large operating companies with large financial backing can secure the money needed for their operations at rates of interest that do not exceed 3 percent per year.

The present net values of oil shown in Table 2 were computed on the basis of 6 percent annual deferment. Table 4 shows these values deferred on the basis of an annual rate of 3 percent.

TABLE 3

Present value of oil in area drilled with various well densities on the basis of different assumed sand thicknesses.

No. of Wells Drilled in Area	ASSURED EFFECTIVE SAND THICKNESS				
	20 Feet	40 Feet	60 Feet	100 Feet	200 Feet
50	$864,900	$1,729,800	$2,594,700	$4,324,500	$8,649,000
27	833,200	1,666,400	2,499,600	4,166,000	8,332,000
17	809,200	1,618,400	2,427,600	4,046,000	8,092,000
12	783,900	1,567,800	2,351,700	3,919,000	7,839,000
7	729,300	1,458,600	2,187,900	3,646,500	7,293,000
5	677,100	1,354,200	2,031,300	3,385,500	6,771,000
3	592,600	1,185,200	1,777,800	2,963,000	5,926,000

TABLE 4

Showing present value of area drilled with various well densities, on the basis of an estimated sand thickness of 20 feet, the future earnings being deferred on the basis of 3 percent annual interest.

Well Density Acres per Well	Total No. of Wells	Discounted Value of Primary Recovery	Discounted Value of Secondary Recovery	Cost of Wells	Present Net Value
4	12	$661,000	$232,000	$360,000	$533,000
7	7	638,000	218,000	210,000	646,000
10	5	614,000	205,000	150,000	669,000
17	3	579,000	181,000	90,000	670,000

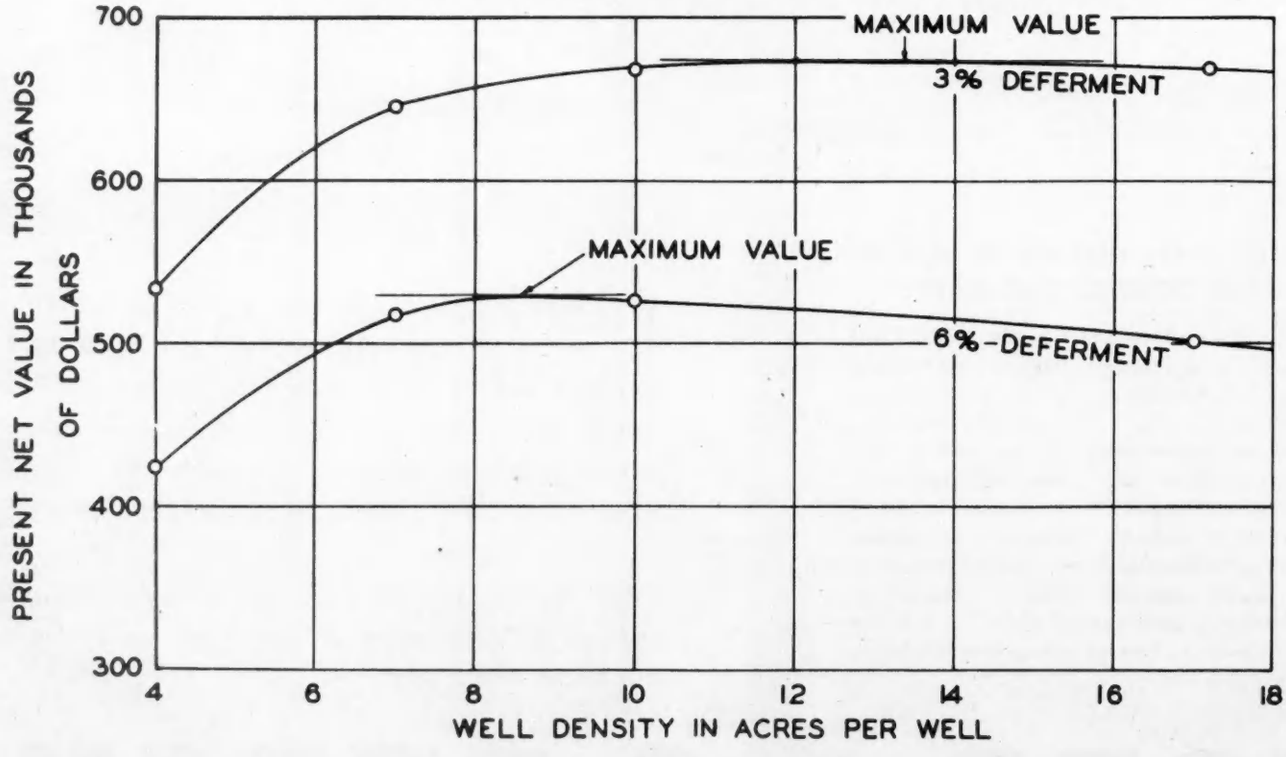
Table 4 shows the maximum net value computed on the basis of 3 percent deferment to correspond to a well density of three wells on the 50-acre area, or 17 acres per well.

Figure 5 shows the present net value of oil computed on the basis of 6 percent and 3 percent deferment factors applied to future earnings. The graph definitely shows that the maximum value of net earnings shifts towards wider spacing of wells as the rate of interest is decreased.

The actual problem of well spacing is much more complex than herein described. The purpose of this paper was not to solve the problem but merely to show in a general way its method of approach. How many companies asking for a 20- or 40-acre spacing have ever stopped to figure out whether from an "economic" viewpoint such spacing would result in maximum earnings? The general attitude of many engineers and executives who believe that fewer wells mean more profit may often be unjustified.

FIGURE NO. 5

PRESENT NET VALUE OF OIL COMPUTED ON BASIS OF 3% AND 6% ANNUAL DEFERMENT OF FUTURE EARNINGS



DRILLING CONTRACTORS' NOTEBOOK

Helpful Suggestions For Those Interested In Drilling Methods

Operating Ideas Maintenance Hints New Rig Hook-ups

Published as a regular feature of THE OIL WEEKLY

You Asked For It!

THE EDITORS of THE OIL WEEKLY have followed with considerable interest the rapidly rising importance of drilling contractors in the development and progress of the oil industry.

There was a time when most oil companies conducted their own drilling operations. This was particularly true when 3,000 feet was considered a record depth. But the advent of deeper drilling with its more rigid requirements quickly transformed drilling into a highly specialized and hazardous operation that could best be handled by those especially trained and experienced in the science of drilling.

Today a large number of companies have found it impractical to maintain a drilling organization and provide expensive rig equipment that necessarily must lie idle much of the time. So the industry has come to lean more heavily on the contractor for drilling its wells.

Drilling contractors have established themselves as an integral part of the modern oil industry and are contributing much to the progressive advancements being made in the discovery and development of the world's crude oil supply.

Thus, sensing an opportunity to further increase the editorial services of THE OIL WEEKLY we asked a prominent drilling contractor the question:

> "Why do you read THE OIL WEEKLY and what can we do to make it more valuable for you?"

His reply was that he must be on the constant lookout for any and every idea that would help him to operate his rigs more efficiently and reduce operating costs if he is to continue to compete in a business that has suffered greatly reduced incomes during recent years.

> "Of course," this contractor continued, "we are interested in most of the news of the oil-producing industry and particularly the technical and engineering articles affecting drilling methods, but our first interest, naturally, is in the discussion of those practical, everyday problems found in rig operation, including new equipment applications, maintenance, improved rig hook-ups, etc."

We interrupted to cite the many articles of this very type that were published regularly in THE OIL WEEKLY and he agreed that they had been very helpful.

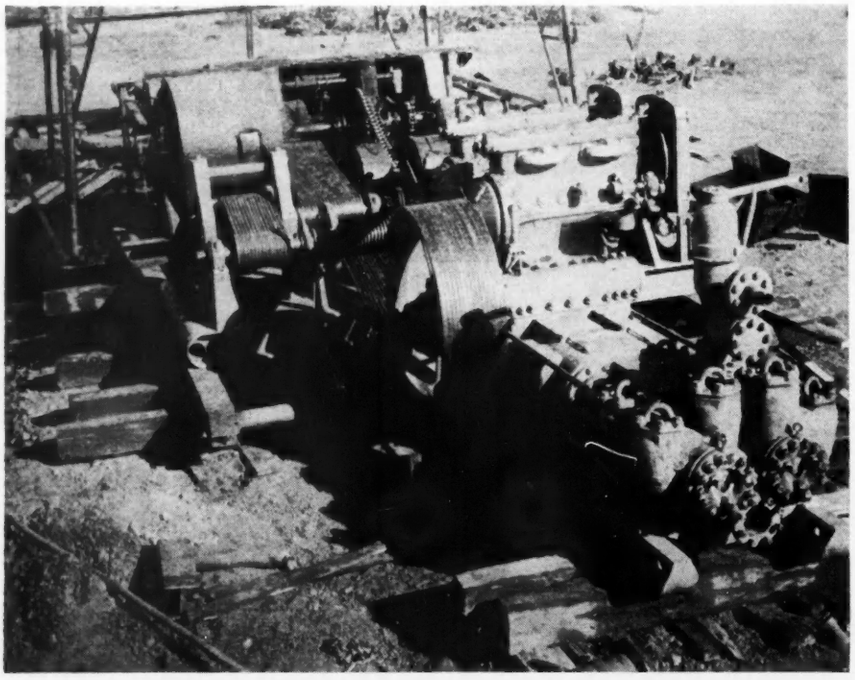
> "But," he said, "drilling contractors and especially our tool-pushers are an active lot who are much too busy 'getting the job done' in the fields, to spend time digging from the vast amount of available data those ideas of particular value in their everyday work. These fellows must take their reading on the run.
>
> "Why don't you editors make it easier for us by grouping these helpful ideas in a regular department of THE OIL WEEKLY each week where they will be readily available to everyone interested in drilling. Make your stories snappy, complete but concise, and amply illustrated for quick consumption."

Our answer is the "Drilling Contractors' Notebook" which, beginning with this issue, will be a regular feature of THE OIL WEEKLY. Here we propose not only to consolidate drilling data that normally would be published, but to enlarge our editorial scope to embrace every item of information that will help you contractors to increase drilling efficiencies and obtain more profit from your services.

Everyone interested in drilling is invited to help edit this feature and all suggestions or criticisms will be appreciated.

1. RIG ASSEMBLY

Five Operations Dismantle This Light-Heavy Rotary Quickly



Mid-Union Drilling Company's light-heavy Diesel rotary is designed so that five separate operations permit it to be dismantled and trucked off the location. In addition the set-up provides for the installation of a second engine and slush pump whenever desired.

MID-UNION DRILLING COMPANY, Tulsa, utilizes a number of outstanding design features on a light-heavy type rotary rig for drilling to 4000 feet in North Texas. Rigging up and tearing down moves are working out exceptionally smooth under variable conditions. In five separate operations the complete rig may be dismantled and trucked off location.

Supercharged Diesels

Ample power is supplied with two supercharged Diesels rated at 200 horsepower each, operating at 1200 revolutions per minute. By the addition of these superchargers a 160-horsepower unit is increased to 200 horsepower. It is a 4-cycle, 6-cylinder engine with a 5¾-inch bore and 6½-inch stroke. A closed water circulating system is the cooling medium. Heavy auxiliary equipment such as air compressors and injection air compressors are eliminated by using an electric starter, the current being supplied from a battery. Lubrication is by force-feed and injection by plunger method. The pistons are oil cooled due to the high pressures developed upon compression. Regular Diesel fuel is used although it is capable of handling any form of petroleum distillate. The engine set-up differs from the ordinary one in that both are bolted to a single steel skid base, 8 feet by 19 feet. The total weight of this unit is 35,200 pounds. Maximum depth to which this rig can drill is approximately 6000 feet.

It is so designed an additional engine may be installed between the second engine and the slush pump. In that event the sleeve sizes would remain the same, a friction clutch added and all three motors then compounded into the draw works. With this arrangement a depth of 9000 feet would be possible.

A dual drive between the reverse clutch and the line shaft of the draw works allows two speeds in reverse. The transmission, driven by chain through a clutch from the motor, gives six speeds on the drum. By having two speeds in reverse at the rotary table, power is compounded in two directions, for either drilling or hoisting or on the slush pump end. Low line speed is 94 revolutions to a high of 141 revolutions per minute.

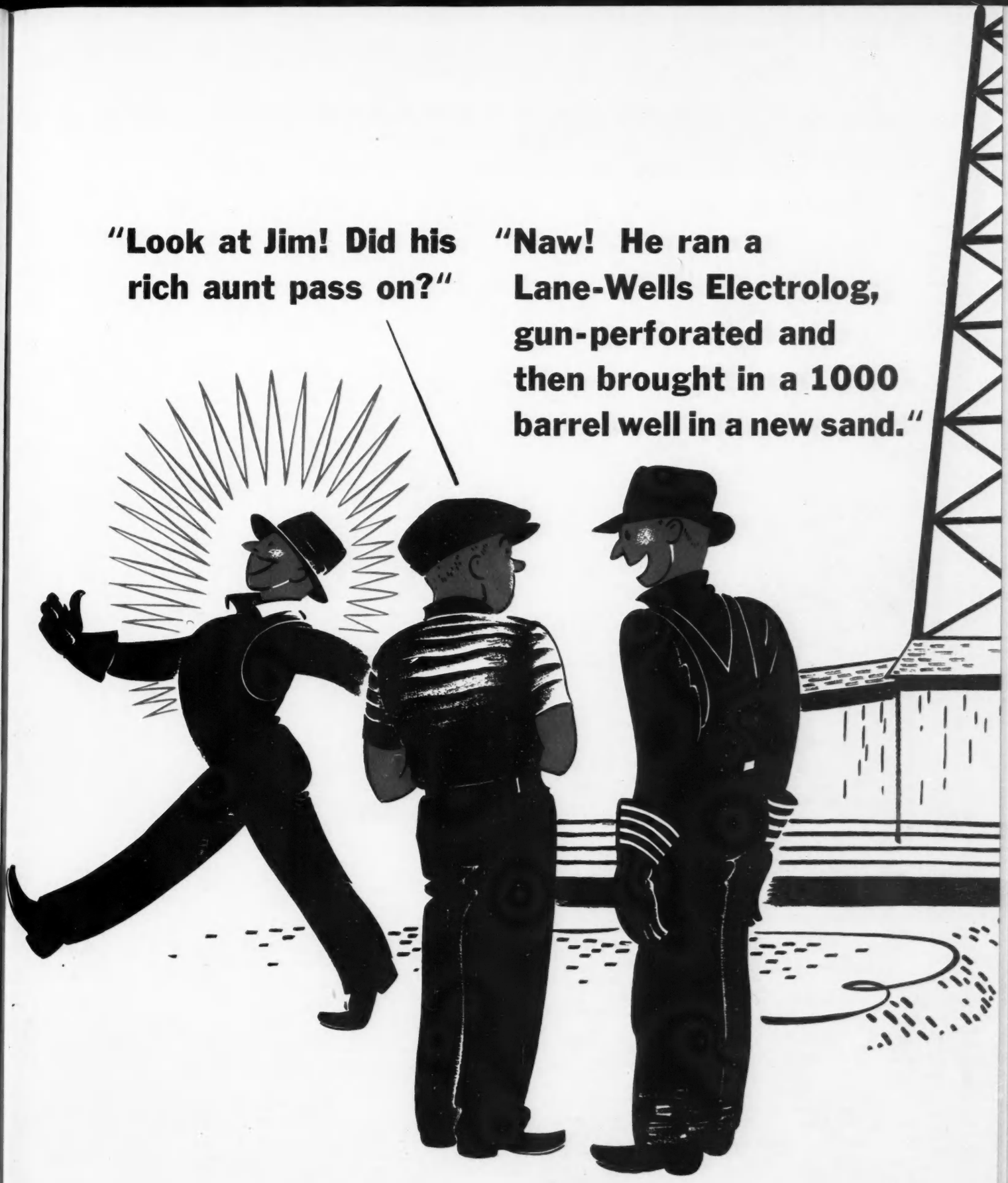
Unitized Mountings

An 8-inch unitized draw works is mounted on a separate skid-type foundation. Friction clutches are used exclusively throughout the transmission with jaw clutches only on the draw works. A sub-base wooden structure supports the engine skid as well as the draw works, thus reducing vibration to a minimum. Both the throttle and hoisting clutch are unitized in a single control. The brakes are water cooled and an automatic cathead is under clutch control at all times. Roller bearings are standard equipment in the assembly, working on the sleeves over the shafts rather than on the shafts directly. Self-aligning bearings are used on the drum shaft.

Three V-belt drives transmits the power. One is off the 66-inch slush pump pulley to a 13-inch drive shaft; another from the 13-inch drive shaft to the 46-inch pulley on the reverse clutch and one from the belt idler compounding shaft. The slush pump, 7¾ x 18 inches with a 6½-inch liner, weighs 27,000 pounds.

"Look at Jim! Did his rich aunt pass on?"

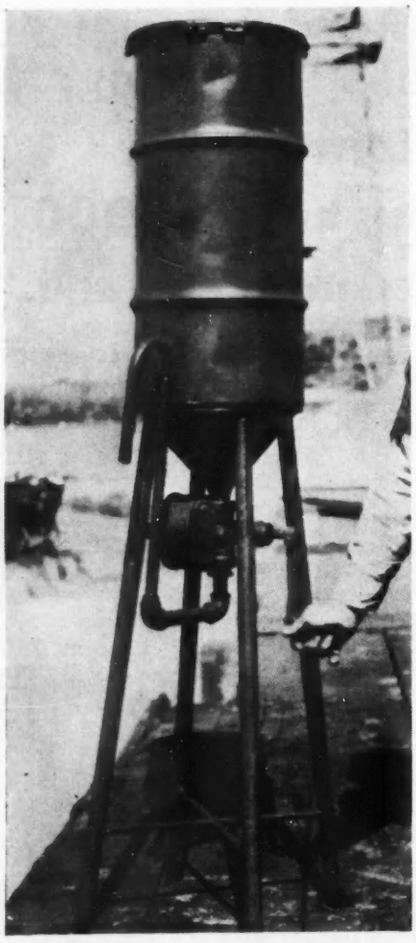
"Naw! He ran a Lane-Wells Electrolog, gun-perforated and then brought in a 1000 barrel well in a new sand."



LANE-WELLS TECHNICAL OIL FIELD SERVICES ***EVERYWHERE***

ELECTRICAL OPEN HOLE LOGGING • OIL WELL SURVEYING • GUN PERFORATING • DIRECTIONAL DRILLING • PACKERS • LINER HANGERS • BRIDGING PLUGS

2. GREASE DISPENSER



This handy grease dispenser, built out of scrap material, is a great time saver around rotary rigs.

Simple Grease and Time Saver

IN order to eliminate the wasteful and usually disagreeable process of handling grease and re-filling grease guns around the rotary equipment, a welder of a large operator built the above handy "grease dispenser" device out of scrap material.

The bottom of a 30-gallon oil drum was cut out and a sheet metal cone was welded in its place. In the bottom or apex a short pipe nipple was welded on. A gear pump of the type used for pumping oil from drums, was fitted to the bottom of the cone. The discharge side of the pump is fitted with a goose-neck of pipe fittings. Other lengths of pipe make up the legs and bracing and were welded to the drum assembly.

An entire pail or drum of grease is emptied into this drum at one time. By simply turning the small crank, any desired quantity of grease may be pumped out without waste and in a minimum time. A particular advantage lies in being able to re-fill grease guns by inserting the goose-neck to the bottom of the opened grease gun and gradually lowering the gun as the grease is pumped in, thus eliminating the familiar and troublesome air-locks that are usually trapped in when filling with a paddle or ladle. The vacuum created by the gear pump will be found to be quite strong, and as long as the temperature remains normal, the grease level in the container will lower evenly, with very little sticking to the sides.

Only one addition was found to be of advantage after this device had been in use for a short while. It consists of a flat circular light gauge steel disc with a number of ⅜- or ½-inch holes drilled in it. It was cut to the inside diameter of the drum so that it would rest at the top of the conical bottom. This disc helps to keep the grease from being continually withdrawn from the center of the column.

In cold weather the assembly is stood near the drawworks or near the steam lines, under cover, so that the grease will continue to flow smoothly.

3. BOILER EFFICIENCY

Chart Checks Oil-Fired Boiler Performance

THIS chart quickly gives the approximate efficiency of any oil-fired boiler provided you know the heat value of the oil and the temperature of the chimney gases.

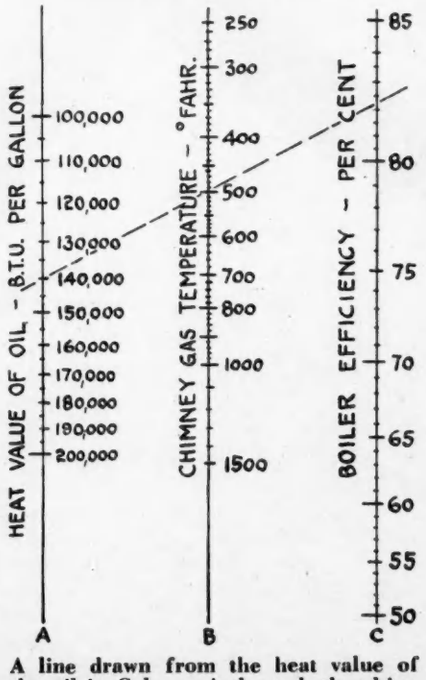
For example, the dotted line drawn across this chart shows that if the heat value of the oil is 140,000 B.t.u. per gallon, column A, and the chimney gas temperature is 500° F., column B, the boiler efficiency of the average boiler will be about 82.2 percent, column C.

The chart is based on the following rule. The rule is not claimed to be "absolutely accurate," but for general use it will be found to give surprisingly close results. The rule is:

"Multiply the chimney gas temperature in °F. by 5000 and divide by the heat value of the oil in B.t.u. per gallon. Subtract the result from 100. The remainder is the approximate boiler efficiency in percent."

Thus applying this rule to the above example where the temperature is 500° F. and the heat value of the oil is 140,000 B.t.u. per gallon, we get 500×5000 equals 2,500,000. Dividing by 140,000 we get 17.8. Subtracting from 100 the result is 82.2 percent, as shown by the chart.

It is obvious that if combustion



A line drawn from the heat value of the oil in Column A through the chimney gas temperature in Column B will give the boiler efficiency when the line is extended to Column C.

Engineers Highly Endorse
JARECKI BRONZE VALVES

Fig. 481—JARECKI "Extreme Service" Bronze Gate Valve, for Refinery and Natural Gasoline Plant service; 200 lbs. S.W.P., 400 lbs. O.W.G.

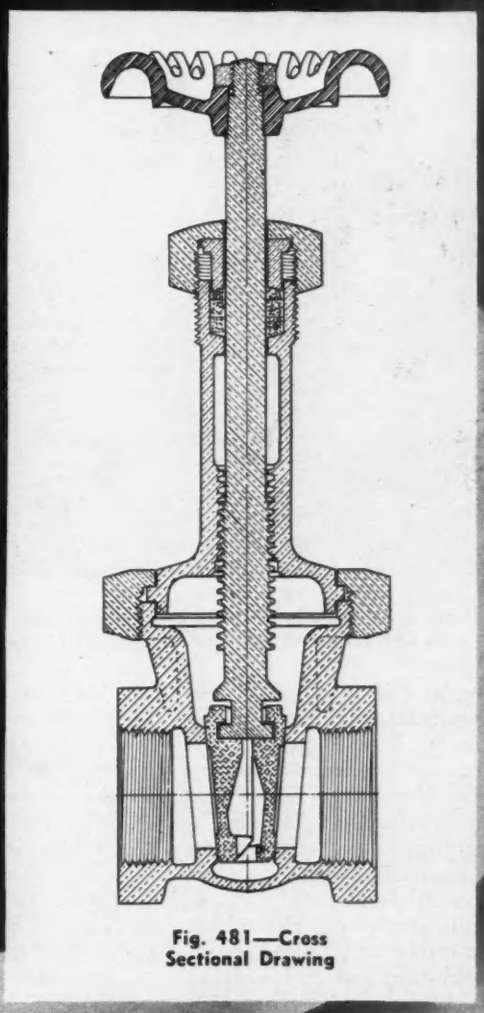


Fig. 481—Cross Sectional Drawing

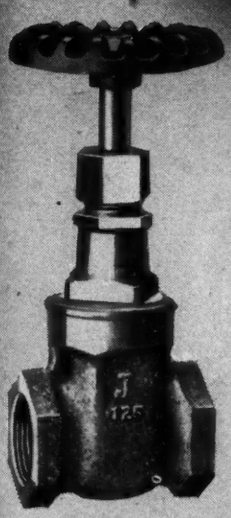


Fig. 450
Standard Bronze
Gate Valve

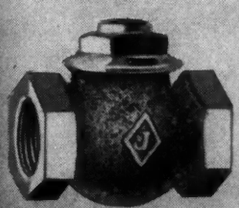


Fig. 426
Heavy Standard
Bronze Check Valve

OIL INDUSTRY engineers who know JARECKI Valves from actual experience, universally endorse them. There are thousands of competent engineers in the oil industry who not only specify JARECKI Valves consistently, but highly recommend them to others, because they have seen them measure up, year after year, to every engineering standard of excellence.

Consider, for example, materials in the JARECKI Bronze Gate Valve, shown above. Body and bonnet are of hard bronze, high in tin content, of 36,000 lbs. tensile strength and 17,000 lbs. yield point. Nickel bronze self-seating discs have minimum Brinell Hardness Number 172, and 45,000 lbs. tensile strength. Manganese bronze stem has tensile strength of 70,000 lbs.

JARECKI manufactures a complete line of Bronze Gate Valves, Globe Valves, Cocks and Fittings. Ask for Catalog 34.

Jarecki
MANUFACTURING COMPANY
"Since 1852"

General Offices: St. Louis, Mo. Home Office and Factory: Erie, Pa., U. S. A.
District Offices: Pittsburgh, Pa.; Tulsa and Bartlesville, Okla.; Dallas and Houston, Texas; Mt. Pleasant, Mich.; Centralia, Ill.
Branch Stores at All Important Places in the Oil Country.

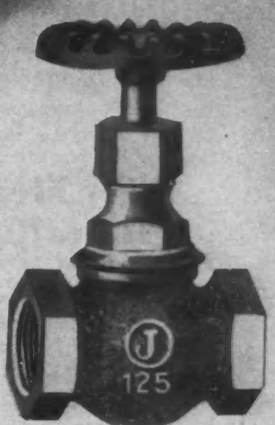
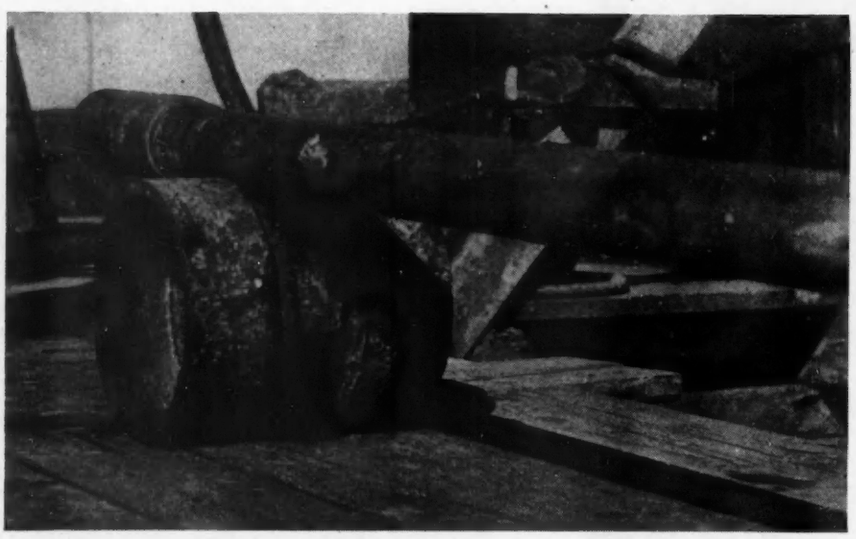


Fig. 414
Heavy Standard
Bronze Globe Valve

Fig. 424
Bronze Regrinding
Swing Check Valve

4. DRILL PIPE ROLLER



With this simple roller, made of 10¾-inch casing with thread protectors at each end, one man can carry drill pipe onto the derrick floor.

is complete, and if we have a low chimney gas temperature, the boiler efficiency is bound to be high because most of the heat has been absorbed by the boiler. The heat must go somewhere. And the higher the chimney gas temperature the lower the boiler efficiency, as indicated by this chart.

A careful study of the chart shows how important it is to maintain a low chimney gas temperature and avoid high temperatures. It also shows that oils of high heat value are likely to give higher boiler efficiencies than are oils of low heat value; the chimney gas temperature being the same in all cases.

Easy Method for Handling Pipe

THE crew of one of the portable light rotary rigs running in western Kansas uses this time-saving and man-saving idea in bringing drill pipe up to the well from the walk. Instead of using the cat-line to pull the length of pipe up on a small 3- or 4-inch roller, they use a short piece of about 10¾-inch casing. Two thread protectors or half-collars are screwed to the ends of an old all-thread nipple. The space between the two collars is just right to accommodate the drill pipe and keep it from rolling off.

On light drill pipe, one man can lift the one end up on this roller, and then with the hook-type buggy on the other end can roll the joint up close to the rotary table.

One of the principal advantages of using the large diameter pipe for the roller lies in the fact that the elevators can easily be thrown on and quickly latched since that end of the drill pipe will be from 12 to 18 inches above the floor.

The roller shown at left raises the pipe sufficiently to permit elevators to be quickly and easily attached.

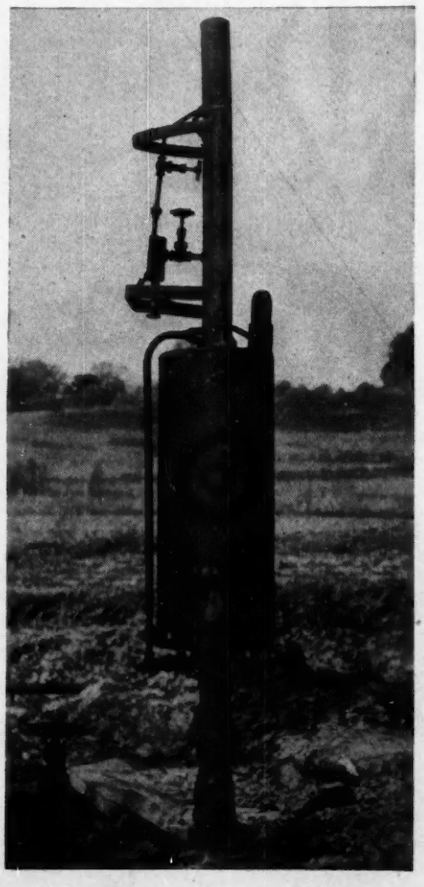
5. STEAM LUBRICATOR

One Oil-Feed for All Rig Steam

BUILT up by the welder on a short section of eight-inch pipe, with the usual sight-feed lubricator carried atop the main oil cylinder, a one-shot oil feed is mounted on the steam lines of one drilling contractor, just ahead of the main line shot-off valves. Thus, as steam feeds through this lubricator, it forces a regulated amount of oil into all steam leaving the boilers for the rig, whether this steam be used in slush pumps, rotary engine, or any other power accessory mounted around the derrick.

Holding enough for a long run, this lubricator requires but infrequent filling, and centralizes the regulation of the amount of oil fed to the steam where it belongs—in the care of the fireman, who can regulate the oil feed without traveling more than a few steps beyond his boiler battery.

This use of a single lubricator removes that much equipment from derrick floor and pumps,



When installed on steam lines, this one-shot lubricator forces a regulated amount of oil into all steam leaving the boilers for the rig.

HIGHLIGHTS IN THE WEEK'S NEWS

Control

Cole subcommittee hearings at Washington February 5

Representatives of the oil states who did not testify at hearings in New Orleans or Los Angeles will appear before the oil subcommittee of the House Interstate Commerce Committee in Washington during a week of hearings on the administration's oil control bill starting February 5.

Upon conclusion of their testimony, the subcommittee is expected to recess for a few days, meeting again on February 19 to hear representatives of the industry, which will conclude the investigation of current conditions.

While the measure has been given the support of high administration officials, it has been given little encouragement by the state officials so far heard by the subcommittee, nor is it expected to receive approval from the group which will testify this week.

When the subcommittee gets into its industry hearings, however, it is expected that all interests, integrated and independent, will offer a solid front of opposition to any federal invasion of the states' authority to control oil production.

The subcommittee's schedule, announced by Chairman William P. Cole, Jr., February 2, shows that Governor Payne Ratner of Kansas will be the first witness. Other appearances which have been filed are as follows:

Arkansas: Governor Carl E. Bailey and O. C. Bailey, chairman of the Oil and Gas Commission.

Michigan: P. J. Hoffmaster of the Department of Conservation and R. I. Smith, state geologist.

Oklahoma: Governor Leon C. Phillips, and representatives of the State Corporation Commission.

New Mexico: Hiram Dow, representing the governor; A. A. Andreas, state geologist, and Glenn Staly, proration umpire.

Mississippi: Governor Paul Johnson; Attorney General Greek Rice and H. M. Morse, Conservation Department director.

Colorado: Warwick M. Downing, chairman of the State Gas Conservation Commission.

Illinois: M. M. Lighton, chief of the state geological survey.

Chairman Lon A. Smith of the Texas Railroad Commission will attend the hearings, but is not expected to testify further, the state's presentation having been made at New Orleans.

In announcing the appearances, Chairman Cole explained, "It is the purpose of the committee to take the testimony of the governors of the oil producing states who desire to be heard on Monday and Tuesday and other representatives on the following days of the week until the hearings have been completed."

U. S. Chamber of Commerce joins opposition to Cole bill

Unqualified opposition to any legislation which would give the federal government control of any natural resource industry, with particular reference to the oil-control bill and a measure for control of bituminous coal mines now pending in Congress, was voiced by the board of directors of the United States chamber of commerce at its annual meeting last week.

At the same time, the board expressed confidence in the United States Bureau of Mines and the United States Geological Survey, recently under fire from Secretary of the Interior Ickes with a change in the directorship of the former, and called for the creation of a natural resources planning agency on which the public will be adequately represented as a substitute for, but not a continuation of, the National Resources Planning Board for which Congress has recently refused to appropriate funds for operation beyond July 1, next.

In a resolution on control of petroleum production, the board noted with approval "the successful efforts of the individual states to control their petroleum resources by means of an interstate compact" and recommended further extension of the state compact plan "with only such cooperative federal legislation as may be required to effectuate conservation statutes of the individual states."

"We are opposed to federal legislation now proposed in Congress that would take from the states their responsibility for the conservation of their petroleum resources, and that would centralize in the federal government complete control over petroleum production," the board declared.

"With the prospect of early enactment of state legislation covering the only important field where conservation statutes appear to be needed at this time, it is believed that enactment of federal control legislation would interfere with the furtherance of the compact plan, which in our opinion offers a practical method of meeting the country's problem of conserving its petroleum resources."

Pointing out that the policies of the chamber respecting mineral resources declare that "the United States Bureau of Mines and the United States Geological Survey should be maintained at high efficiency," the chamber's natural resources committee adopted a resolution of "confidence in and approval of the excellent work that has been done over a long period of years," by the two organizations.

"These scientific agencies of the federal government are maintained under civil service, and their civil service status should be maintained at all times," it was declared. "They have been and still can be maintained in a state of high efficiency only as they are kept free of political influence."

The proposed natural resources planning agency would have as members representatives of the war, interior and agricultural departments but "a preponderant number of private citizens appointed by the President from widely separated areas of the country, serving only on a per diem basis, and confirmed by the senate."

The domination of the agency by nongovernmental members, it was declared, will insure a reflection of the needs of the entire country instead of the needs of some particular area, will provide a more disinterested body to decide on disagreements, if any, among the three federal departments; will protect the states against undue encroachments by the federal government over their resources against the will of state engineers, conservation boards and boards of control; and will be more consistent with the American policy of the rights of the states in their relation to the federal government.

"The agency should derive its authority directly from Congress by statute and not by executive order," it was declared, in reference to the National Resources Planning Board, which has been denied funds on the ground it was not established by law.

"Coordination to be effective should in many instances include state projects," it was held. "To safeguard the rights of the states in their natural resources, however, the cooperation of the states should be on a voluntary basis, and the federal agency should submit no recommendation affecting state projects without consulting with state and local authorities."

News Index

General:

Allowables	37
Control	37
Courts	39
Legislation	40
Men in News	41
Markets-Statistics	43
Pipe Line News	45
Crude Prices	46
World Developments	47

U. S. Field Operations:

Arizona	61
Arkansas	60
California	62
Completions	63
East Texas	55
Forest City Basin	50
Illinois	49
Indiana	50
Kansas	51
Kentucky	50
Louisiana Coast	59
Michigan	62
Mississippi	60
New Mexico	61
North Louisiana	60
North Texas	52
Oklahoma	51
Rocky Mountain	61
Southwest Texas	56
Texas Gulf Coast	58
West Texas	54
Wildcat Development	67

Illinois-Indiana group opposes Cole bill

The Illinois-Indiana Petroleum Association last week joined in opposition to the Cole bill for federal control of the oil industry. A resolution terming provisions of the bill to be "subversive to our constitutional form of government" was adopted by association directors, and copies mailed to all members of congress from Illinois and Indiana.

"The practices and methods pertaining to petroleum prospecting, production and conservation of deposits generally approved and now prevailing throughout the country have been devised and adopted by men possessing the practical experience necessary to qualify them as leaders and teachers concerning such matters," the resolution said.

"Progress in the discovery of new principles and improvement of mechanical applicances and operating practices has been rapid and gratifying under our long established competitive system, especially during the last few years, and may reasonably be expected to continue if not balked or disturbed by the inauguration of a system entirely alien to our general governmental system and under which the public could have no assurance that individual enterprise, initiative, and experiment might remain active or even be permitted to survive."

Allowables

February allowables exceed indicated market demand

Allowables set by the regulated states for February are, in aggregate, 2.6 percent higher than the United States Bureau of Mines estimate of demand for domestic crude. The factors, seasonal and otherwise, which were reflected in a cut of 40,700 barrels in the economic allocation were not respected by many of the conservation agencies who forced an increase in quotas.

With this latest advance in allowables, serious overproduction of the advisory figure seemed imminent. National production, as estimated by the American Petroleum Institute for the four weeks ended January 27, was 3,606,400 barrels daily, against the January prediction that 3,569,700 barrels would best meet market demands. More liberal allowables in February, plus an expected increase in Illinois output, indicate that excess oil produced during the month will amount to 80,000 barrels daily.

Texas, in returning all districts except the East Texas field to the full production week, raised daily average allowable 18,750 barrels to 1,390,150 barrels, where it was 18,750 barrels, or 1.4 percent, in excess of a bureau allotment reduced 39,600 barrels from the January level.

California proration quota was cut 5000 barrels to 594,000 barrels by the Central Committee of California Oil Producers. This drop failed to match that in the bureau forecast, which fell 8000 barrels to 585,900 barrels.

Arkansas allowables were reduced slightly to 70,000 barrels, where they were 10,000 barrels, or 16.7 percent, over the bureau. The Louisiana allocation was raised 5000 barrels in the face of a 2000-barrel decrease in indicated demand. New Mexico authorities foresaw demand for 113,000 barrels of oil per day, although the bureau recommended 100,300 barrels as the economic output.

Oklahoma administrators continued in accord with federal forecast, setting the quota at 429,000 barrels daily, compared with 433,900 barrels for January.

February allowable for Kansas was hiked 4400 barrels over the January to 165,000 barrels daily by the Kansas Corporation Commission. This is 9500 barrels above the Bureau of Mines estimate of demand, but is below pipe line nominations for the month. This is the first time in five months the bureau figure was exceeded.

The bureau's assignment to Illinois increased to 325,500 barrels daily, a figure 22,100 barrels less than actual average production for the past month. While the latest allocation is 10,700 barrels higher than that for January it is not improbable that increased production will destroy whatever benefit there might be in the more liberal allocation.

The current trend toward larger margins of excess over indicated market demand is highly inopportune in the light of the industry's present statistical position. If continued, it must mean that large amounts of empty crude storage space, now the best bulwark against any move toward lower prices, must be filled, or that refinery activity cannot be abated to reduce surplus gasoline stocks.

February Allowables Exceed Indicated Market Demand

STATE	Bureau of Mines Forecast of Demand	State Allowable Beginning of Month	Excess or Deficiency of State Allowable	Percent Excess or Deficiency
Arkansas	60,000	70,000	+ 10,000	+ 16.7
California	585,900	594,000	+ 8,100	+ 1.4
Kansas	155,500	165,000	+ 9,500	+ 6.1
Louisiana	252,800	273,250	+ 20,450	+ 8.1
Michigan	64,500	65,000	+ 500	+ 0.8
New Mexico	100,300	113,000	+ 12,700	+ 12.6
Oklahoma	429,000	429,000	.....	.....
Texas	1,371,400	1,390,150	+ 18,750	+ 1.4
Total eight states	3,019,400	3,099,400	+ 80,000	+ 2.6
Total other states	509,600	.....	.....	.....
Total United States	3,529,000	.....	.....	.....

Arkansas commission to hear allowable attack February 16

The Arkansas Oil and Gas Commission last week deferred until February 16 a discussion of Lion Oil Refining Company's petition attacking validity of the commission's February oil allowable schedule. The date was set later to permit commission members to attend a hearing before the Cole subcommittee in Washington beginning February 6.

The commission also deferred until February 16 decision on application for a permit by Normandie Oil Company to drill a test in Section 25-17-19, Columbia County, as an exception to the regular spacing rule for the Magnolia field.

Lion Oil Refining Company attacked the February oil allowable schedule on several grounds, including a claim that "the order does not contain the findings of fact established by Act 105 (Arkansas legislature) as prerequisites to your commission for entering an order controlling or regulating production of oil wells in the state."

The petition also charged that "insofar as the said order applies to the Jones sand (lower Marine) of the Schuler field, it is unreasonable, confiscatory, and arbitrary in that the formula, under which the field allowable for the pool is allocated, does not take into consideration the thickness of saturated sand under any drilling unit as a basis for said allocation, as is required by Act 105."

Changes in Texas February 1 order still in doubt

Texas oil operators were still in doubt as to the exact changes of the statewide proration order when it became effective February 1. A day or two preceding the first of the month, Commissioners Lon A. Smith and Jerry Sadler said that some "adjustments" had been made in the order raising allowables for some fields and lowering those for others. They declined, however, to divulge just where the "adjustment" had been made.

Commissioner Sadler said that the changes were necessary because errors had been made in computing allowables originally assigned. He said that allowables of Cedar Point, South Esperson, and Stribling had been increased a total of about 900 barrels. He declined to name fields in which decreases had been ordered, but said the total of those would exceed increases granted in other fields.

Last week, oil operators swarmed into Austin to protest against reductions made under provisions of the new order, but so far as could be ascertained, none of them got an increase with the exception of the three named above.

The application of the McElroy Ranch Company for an increase was flatly denied, and that company went into federal court to attack the commission's order. Gulf Oil Corporation protested West Texas cuts and asked for a hearing on several fields, which was called for February 9.

Apparently the commission was determined to sit tight and await developments. Plans were made to defend any suits which might be filed.

Because the commission had de-

cleared flatly that it would make no adjustments in the February order but would wait until March to effect changes, operators began asking for hearings at once.

The Texas Railroad Commission Friday announced allowable adjustments for fields which have been changed since the statewide order was issued. Chairman Lon A. Smith pointed out that the other commissioners were in Washington and that he planned to be there next week. For that reason no other changes may be expected before February 9 or 10.

Increases announced Friday were: Cedar Point, raised from 550 to 1279 barrels daily; West Columbia, raised from 5339 to 7364 barrels; Fuhrmans, raised from 1314 to 1562 barrels; West Beaumont, raised from 2664 to 3329 barrels; Esperson Dome, raised from 560 to 800 barrels daily.

Smith declared that some operators complaining of cuts had forgotten that shutdowns had been lifted in all fields.

Texas adopts 20 acres as standard spacing unit

The Texas Railroad Commission has entered an order, effective February 1, 1940, fixing 20 acres as the standard spacing unit for wells drilled in fields where special spacing rules do not apply. The order requires that wells be spaced in the center of square 20-acre units, 466 feet from lease lines and 933 feet apart.

At the time the order was issued, commissioners announced that they did not intend to make it retroactive; that is, if a field without special rules has been developed on another basis, a hearing may be held and a special rule entered providing for continuation of development on the old basis. The new rule supplants one which has been in effect since 1919 providing for the location of wells in the center of square units of 2.06 acres. This allowed wells to be spaced 150 feet from lease lines and 300 feet apart. It still applies in many fields which have been developed on much wider spacing.

A.P.I. committee to study production allocation

A study of methods of allocating oil production has been planned by the recently-appointed Special Study Committee on Well-Spacing and Allocation of Production of the American Petroleum Institute's production division Central Committee on Drilling and Production Practice. D. R. Knowlton, Phillips Petroleum Company, Bartlesville, is chairman of the 1940 study committee, which was appointed by C. E. Reistle, Jr., Humble Oil & Refining Company, Houston, chairman of the central committee.

Besides devoting a considerable part of its time to problems of allocation, a subject on which little committee work has been done recently, the committee will continue to study the relation between well spacing and pool performance, and to foster the development of pressure coring. Pressure cores, which are samples of oil sands retaining actual subterranean conditions for laboratory study, promise to be the source of data invaluable in predicting oil-pool performance. Greater ultimate recovery, or more economic recovery, of oil from underground sands is the major object of the committee's work.

Members of the 1940 committee, besides Knowlton, are: M. Albertson, Shell Oil Company, Houston; G. S. Bays, Stanolind Oil & Gas Company, Tulsa; W. B. Berwald, Ohio Oil Company, Tulsa; M. G. Cheney, Anzac Oil Corporation, Coleman, Texas; J. E. Gosline, Standard Oil Company of California, San Francisco; H. H. Hardison, Standard Oil Company of Texas, Houston; F. E. Heath, Sun Oil Company, Dallas; N. M. Hutchinson, Cities Service Oil Company, Bartlesville; M. J. Kirwan, Indian Territory Illuminating Oil Company, Bartlesville; R. S. Knappen, Gulf Oil Corporation, Tulsa; Edgar Kraus, The Atlantic Refining Company, Carlsbad, New Mexico; H. C. Miller, United States Bureau of Mines, San Francisco; R. V. Moore, Humble Oil & Refining Company, Houston; W. S. Morris, East Texas Engineering Association, Kilgore, Texas; E. L. Rawlins, Union Producing Company, Houston; C. E. Reistle, Jr., Humble Oil & Refining Company, Houston; E. A. Stephenson, University of Kansas, Lawrence, Kansas; D. B. Taliaferro, United States Bureau of Mines, Bartlesville; C. D. Watson, Carter Oil Company, Tulsa; F. E. Wood, Standard Oil Company (Indiana), Chicago; and R. D. Wyckoff, Gulf Research & Development Company, Pittsburgh.

Texas emergency hearings set precedent

Emergency hearings on the Kubela field, Wharton County, and the Schwab-Wilcox field, Polk County, were held by the Texas Railroad Commission in Austin last week. The procedure followed by the commission was most unusual and apparently establishes an entirely new precedent.

Heretofore, the commission has followed the statute which provides that 10 days' notice must be given before a hearing may be held. In some cases emergency orders have been issued, but this is the first case, at least for a long time, where operators were telephoned the night before and advised to appear if they were interested.

Lisle Steele, of Mexia, represented operators at both hearings. He asked for a 30-day test period in the Schwab-Wilcox field to determine whether operators can prevent an increase in the production of water. During that period, he asked that wells be permitted to produce 125 barrels daily.

For the Kubela field, which was cut to 32 barrels per well for February, Steele asked an allowable of 70 barrels to prevent the wells from sanding up. Testimony presented by operators showed that wells in the field frequently sand up unless the water is kept moving.

Texas State Land Board offers 5748 acres March 5

Bids on 5748 acres of Texas state lands will be received by the State Land Board at Austin on March 5, according to a statement released last week. One group consists of 12 tracts of surveyed lands upon which bids for sale were refused earlier this month.

Courts

Three-judge court to rule on Texas orders

Several cases involving orders of the Texas Railroad Commission have been set for hearing before a three-judge federal court at Austin on February 12. The court will consist of Judges R. J. McMillan, E. R. Holmes, and J. V. Allred.

Included is the suit brought by Rowan & Nichols attacking the current proration order in the East Texas field, as well as suits filed by Humble Oil & Refining Company and F. W. Fischer complaining of the same order.

The suit brought by the McElroy Ranch Company attacking the February proration order fixing an allowable for the McElroy field in West Texas is also set for hearing on its merits at this time. The Ranch Company alleges that the order of the commission is discriminatory because it fails to maintain the allowable balance between the Church-Fields and McClintic field which adjoin the McElroy Ranch field, and that this maladjustment will result in drainage of the Ranch field by the fields which offset it.

The McElroy Ranch Company, meanwhile, was granted an injunction by Judge McMillan preventing enforcement of the commission's order for February as it applies to the Gulf-McElroy field in West Texas.

At a court hearing last week, the company claimed that the new order does not maintain the allowable balance between the McClintic, Gulf-McElroy and Howard-Glasscock fields, which adjoin each other. As a result, it was contended the Ranch property will be drained.

The commission argued that the Ranch was drilled sparsely and that for that reason waste would result in that all of the oil would not be recovered.

Last phase of first Madison trust case to be argued

The last remaining phase of the first Madison oil anti-trust case which started a tedious journey through federal courts October 4, 1937, will come before the United States Supreme Court this week. That body will hear arguments on an appeal from a Chicago circuit court decision reversing a trial-jury verdict on which 12 major oil companies and 5 oil company officials were fined a total of $65,000 for allegedly conspiring to artificially raise gasoline prices.

The Madison conviction was returned in January, 1938, against 16 companies and 30 individuals. Federal Judge Patrick T. Stone, however, divided defendants into three groups and, 6 months after the jury verdict, dismissed charges against 1 company and 10 individuals, granted new trials to 3 companies and 15 individuals, and permitted the jury verdict to stand as it pertained to the remaining 12 companies and 5 individuals.

The Circuit Court of Appeals at Chicago later ruled, in an appeal taken

by counsel for convicted defendants, that a buying program through which defendant companies took distress gasoline from the Mid-Continent and East Texas spot markets was not an unreasonable restraint of trade, and accordingly ordered a new trial.

Meanwhile, the Department of Justice last week withdrew its application for reconsideration of the Supreme Court's November 22 decision which, by an evenly divided vote, affirmed the action of Judge Stone in dismissing the cases against the group of 11 defendants.

The action of the court, following the death of Associate Justice Pierce Butler, was taken without the delivery of a formal opinion and followed the rule that where the court is evenly divided the verdict of the lower court is upheld.

The case was considered by the Department of Justice to be one of great importance because of its possible effect upon other anti-trust prosecutions, and a petition was filed asking for reconsideration when the vacancy on the court was filled and it would be possible to get a decision by a majority.

No explanation was given by the department for its withdrawal of the petition, but it was seen actuated by a desire not to embarrass Associate Justice Frank Murphy, who was attorney general at the time the application for rehearing was filed.

In accordance with Supreme Court custom, it was expected that Murphy would not participate in the consideration of a case with which he had been connected prior to joining the court, and if he did so the court would still be equally divided.

Supreme Court finally upholds government in Section 36 case

Title of the federal government to Section 36 of the Elk Hills, California, oil field last week was made absolute by the Supreme Court through its denial of a petition of Standard Oil Company of California for review of the Ninth Circuit Court of Appeals decision affirming a lower court ruling to that effect and awarding the government $6,214,102 for trespass in good faith.

The major point involved in the litigation was whether the lower courts acted properly in accepting a decision of the Secretary of the Interior without taking evidence and making a judicial determination as to his authority to make rulings carrying evidentiary weight.

Appealing to the Supreme Court, the company had asked for a determination as to whether it had a right to a judicial decision as to whether legal title to the land passed to the State of California in 1903 and thereafter to it by patents in 1910.

It was set forth that from 1903 to 1908 the state held Section 36 for sale without bidders and that in the latter year it was sold at the statutory price of $1.25 per acre. In 1909 and 1910 Standard Oil Company bought part of the section from the state patentees at about $22.50 per acre. The land was first drilled in 1918 and oil discovered the following year.

In 1921 the federal government first gave notice of a claim to the section on the ground that the land was known to be mineral in 1903, but the proceeding was dismissed by the Secretary of the Interior on the ground that the United States "was precluded from questioning the titles of the state and its transferees," but in 1924, following passage by Congress of a resolution directing the action, new proceedings were initiated.

After several years of litigation within the department, the case eventually reached the courts where decisions satisfactory to neither the government nor the company were rendered.

The company appealed on the ground that the courts should have investigated to determine whether the Interior Department's determination that title rested in the United States was properly arrived at and should have given it credit, in assessing damages, for several million dollars which it had expended. The government appealed from the ruling denying it interest prior to judgment and on other damage questions.

The court's rejection of the appeal dealt only with the questions raised by the company. Associate Justice Stone did not participate in the consideration of the case.

Characterizing the court's action as a "smashing victory," Secretary of the Interior Harold L. Ickes, ordered the General Land Office and the department solicitor to proceed immediately to secure title to the land and collect the damages awarded.

"The action of the Supreme Court constitutes a smashing victory for the government," he said. "Not only does it restore to the American people their right to ownership of this valuable oil, but it clinches for the public use one of the major elements of national defense.

"Those of us in the Department of the Interior who have played a part in this long struggle cannot but be proud of the outcome. It was five years ago, almost to a day—January 24, 1935, to be exact—that we took the first step to clinch the title of the United States to these valuable mineral lands. On that day, it was my privilege as Secretary of the Interior to decide that these important resources were a part and parcel of the nation's public domain.

"This position of the Department of the Interior has now received complete vindication at the hands of the federal courts. On February 11, 1938, we won our second victory in this fight, when Judge Leon R. Yankwich, of the District Court in Southern California, held that title to Section 36 of the Elk Hills tract belonged to the government, and ordered the Standard Oil Company to pay more than $6,000,000 in damages and court costs.

"This position was upheld by the Circuit Court of Appeals on November 17, 1939, and clinched by the Supreme Court action of today."

Department officials pointed out that the fight for recovery of the Elk Hills land was based originally upon Senate action following the historic Teapot Dome investigation by the late Senator Thomas J. Walsh of Montana.

The value of the area, they said, was partially indicated during the course of the litigation by evidence showing that more than 4,978,000 barrels of oil, worth $8,300,000; 60,140,000 million cubic feet of dry gas, worth $3,000,000, and 12,981,000 gallons of gasoline, valued at $1,104,000, had been extracted from Section 36.

Legislation

Illinois conservation bill consideration delayed

A special session of the Illinois legislature, which Governor Henry Horner first indicated would be called last fall, will not be called until after the April 9 primary election, it became apparent last week as legislators and administration leaders directed their efforts toward the approaching contest.

The governor several months ago indicated he would include an oil conservation measure in his proposed special session call if factions within the industry would come to an agreement on a bill. A measure accordingly was submitted by 3 organizations representing major companies and certain independent interests, but it was immediately attacked by a fourth organization comprised of a group of independent operators, refiners and pipe line companies.

Another bill has since been drawn by Professor Neil Jacoby, professor of economics at Northwestern University, whom the governor described as a disinterested individual capable of making a thorough and impartial study of the question. Jacoby's bill has been sent to Attorney General John E. Cassidy for study.

Meanwhile, there is growing sentiment among many legislators to delay consideration of oil control legislation until the next regular session, January 1940, in view of the election this fall.

Protest failure to protect oil excise tax

Members of Congress from the oil producing states warned the House Ways and Means Committee February 2 that failure to protect the excise tax on imported oil would result in opposition to the enactment of pending legislation to extend the Reciprocal Tariff Act beyond June 12, next.

Representatives Lindley Beckworth, of Texas, and Lyle Boren, of Oklahoma, told the committee that cutting the excise tax in the Venezuelan Reciprocal Trade Agreement was a serious matter in the oil industry and made a plea for amendment of the law, if continued, so as to prevent inclusion of excise taxes in the group of "barriers" which may be used for trading purposes in the negotiation of treaties.

California operators push plan for less drilling

Representatives of 15 major and independent companies operating in California met last week with C. G. Williams, chairman of the New Well Drilling Committee of the Central Committee of California Oil Producers, to formulate a working program that would meet with the approval of all producers.

The group, which is attempting to curb drilling to necessary tests and to persuade operators to extend their current drilling programs over the next three years, adjourned without making an announcement. Another meeting of the group is expected this week.

MEN IN THE INDUSTRY'S NEWS

E. DE GOLYER, consulting geologist, on February 14 will be awarded the Anthony F. Lucas medal, highest honor that can be bestowed by the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, for initiating applied geophysics, directing the early practical seismic exploration, and fostering applied science in finding, developing and producing oil.

JOE GOODMAN has assumed his duties at Shreveport as special assistant to Vice President C. R. Minor of Gulf Refining Company. Goodman formerly served as zone agent in Tyler, where he directed the work of Gulf Oil Corporation of Texas in 40 East, Northeast and Central East Texas counties. He was succeeded by K. B. Foreman of Tyler, who has been acting as his chief clerk and assistant. In his new post, Goodman will supervise Gulf operations in Arkansas, North Louisiana, Mississippi and Alabama.

J. W. HALE, assistant general superintendent of Magnolia Pipe Line Company's telephone and telegraph department, Dallas, was placed in charge of communications, effective February 1. Andy J. Balcom, general superintendent of the department who is eligible for retirement this year, will continue to supervise electric power activities.

KOITI TENNITI, secretary of the department of commerce of Japan, and Isamu Ohya, also a representative of the Japanese government, are in Mexico City, presumably in connection with negotiations for shipment of Mexican crude and refined oil products to Japan.

PROFESSOR GHERON NETTA, former secretary of the ministry of industry for Rumania, last week was appointed petroleum commissioner for that country. Netta previously had been head of Rumania's Economic Institute and a director of the Bankers' Association of that country.

TORKILD RIEBER, chairman of the board of The Texas Corporation, recently returned from Europe, is causing considerable speculation in New York as to the subject of his talks with Field Marshal Hermann Goering in Germany in January. On January 29, Rieber conferred for half an hour in Washington with President Roosevelt on matters on which neither of them have seen fit to issue a statement.

MEL SHERWIN, Sun Oil Company, paleontologist, has been transferred from Evansville, Indiana, to Dallas.

SIMON CRITES, Phillips Petroleum Company landman in Evansville, Indiana, has been transferred to Corpus Christi.

R. G. STOREY, E. Taylor Armstrong and M. M. Williams last week organized the Puritan Oil Company as a Texas corporation with headquarters in Dallas.

E. DE GOLYER
Will receive Anthony F. Lucas Medal

W. H. LOCKE was named president of Pennsylvania Gas Company when the company held its annual meeting last week. Others elected are C. T. Sloan and E. D. Wetmore, vice presidents, and E. C. Christensen, secretary and treasurer.

D. B. COLLINS, production manager for Shell Oil Company at Houston, presented service awards to 56 employes of the company in the East Texas area during ceremonies held in Kilgore last week.

E. O. BUCK, Houston geologist, discussed "Results Obtained in Study of Fields in South Texas and North Louisiana" before the student chapter of the A.I.M.E at Texas A. & M. College last week.

J. B. CHRISTIAN, F. C. Carpenter and J. C. Vann have organized Christian-Carpenter Drilling Company with headquarters in Houston.

J. W. "RED" SELBY, chief scout in the Houston district for Shell Oil Company, returned to headquarters last week after a trip through West Texas and New Mexico.

DR. E. H. SELLARDS, director of the bureau of economic geology at the University of Texas, gave an illustrated discussion on "Excavation of Meteor Craters and other Recent Excavations in Texas" before the Houston Geological Society last week.

J. B. PHIPPS, JR., J. D. Barefield and J. B. Phipps have organized Barefield-Phipps Oil Corporation with headquarters in Fort Worth.

FRANK E. POULSEN, Fort Worth division chief geologist for the Pure Oil Company, has resigned to engage in consulting work. He has been succeeded by Lynn K. Lee, former Illinois division geologist with headquarters at Olney.

HARRY M. SMITH, graduate of Texas A. & M. College and for several years a drilling rig workman for Magnolia Petroleum Company, has been assigned to scouting in West Texas with headquarters at Colorado City. He succeeds John V. Branon, resigned.

EMIL MONSOUR, geologist for Sun Oil Company, has been transferred from Dallas to Tallahassee, Florida, for combination duty as paleontologist and scout.

DAVID G. HAWTHORNE, Amerada Petroleum Corporation, discussed "Electrical Logging While Drilling" before a joint meeting of the Tulsa Geological Society and the Tulsa chapter of the A.I.M.E. last week.

GLEN IRELAND, transmission engineer, American Telephone & Telegraph Company, New York, will discuss "Multi-Channel Carrier Telephony" before the Tulsa Chapter of American Institute of Electrical Engineers on February 19.

OTIS RITTER and William Blackburn, engineers with Oklahoma Pipe Line Company, have been transferred from Harden City to Graham, Oklahoma.

GLENVER McCONNELL, mechanical engineer, Shell Oil Company, Tulsa, has been temporarily moved to Centralia, Illinois.

HORACE CLARK, Amerada Petroleum Corporation, is being transferred from Louisiana to the Tulsa office.

CLARENCE NYHOF, crude oil department, Shell Oil Company, has been transferred from the Tulsa office to Houston.

ANDREW VASILESCU is a new employe for Shell Oil Company at Tulsa. Vasilescu was formerly in Roumania.

H. W. STRALEY, III, and a group of advanced students of the department of Geology of Baylor University, Waco, Texas, recently spent a week-end studying the geology of the Arbuckle mountains in the vicinity of Ardmore, Oklahoma.

A. E. BOOTH of M. D. Booth & Company, has been named to the production advisory committee of the Pennsylvania Grade Crude Oil Association.

TOM ALLEN, Petty Exploration Company, San Antonio, was speaker at the monthly meeting of the Shreveport Geological Society. His topic was "Gravity Methods and Interpretation in Mississippi."

EDWARD R. LAND, secretary-treasurer of Westbrook-Thompson Holding Corporation, Fort Worth, has resigned as an officer of the company, and has been succeeded by Marvin Mabry, who was formerly with the Westbrook Oil Corporation.

PAUL R. MARTIN, chief scout for Pure Oil Company in the Fort Worth division, has been transferred to Odessa, Texas, in connection with the company's program for more active operations in West Texas during 1940.

O. R. DAVIS, former Texas Railroad Commission rate inspector, has assumed his new duties as secretary of the Oil Field Haulers Association with offices in Houston.

WILLIAM H. McDONALD, former Texas State Land Commissioner, has announced that he will be a candidate for the Texas Railroad Commission to replace Lon A. Smith, whose term ends this year.

A. C. MATTEI, president of Honolulu Oil Corporation, San Francisco, spent the fore part of last week in Fort Worth for a series of conferences with officials of the Motor Fuels Corporation. The latter company operates a refinery at Levelland, Texas, and was reorganized last October.

E. E. MERKT, production foreman for The Texas Company in the Nocona, Texas, area, has been transferred to Wichita Falls to become assistant to District Superintendent M. J. McGuigan.

M. C. PECK, chief clerk for The Texas Company's producing department in North Texas for 12 years, has been transferred from Wichita Falls to Parks, where he will occupy a similar position in the West Central Texas district. Neal W. Gaut, formerly stationed at Pampa, Texas, will succeed Peck at Wichita Falls.

H. L. McQUISTON, former Oklahoma conservation officer at Cushing, has joined the Hawkeye Oil Company as production superintendent with headquarters at Winfield, Kansas.

DIED:

RALPH DANIEL REED, 50, chief geologist for The Texas Company in California and a past president of the American Association of Petroleum Geologists, died at his home in Pasadena January 29 after an illness of several months. Funeral services were held February 1 in Pasadena.

Reed was elected to honorary membership in the A. A. P. G. in September, 1939, the second past president of the organization to be so honored. He studied geology under Professor Eliot Blackwelder at the University of Illinois and in the year 1921-22 taught at the University of Oklahoma. He moved to Palo Alto, California, in 1922, to accept a teaching fellowship at Stanford and continue his geological studies, and two years later devoted part of his time to economic work as geologist for the then newly organized Coast Land Company, predecessor to Marland Oil Company of California. His work for Coast Land Company is credited with playing an important part in acquisition of leases on the

RALPH D. REED
Died at Fifty

Kettleman Hills structure in the San Joaquin Valley which now are included in valuable holdings of Continental Oil Company, successor to Marland Oil Company of California. He resigned as chief geologist for Marland Oil Company in 1929 to become assistant chief geologist for The Texas Company in California. He was made chief geologist in 1930.

Most outstanding among his publications are "Geology of California," published in 1933, and "Structural Evolution of California," in which he collaborated with J. S. Hollister. The latter work was published in 1936.

JOHN B. TONKIN, 64, former president of Peoples Natural Gas Company, Pittsburgh, died January 25 at Miami Beach, Florida. Tonkin, who retired in February, 1936, started in 1894 as a pipe line superintendent's clerk with River Gas Company at Marietta, Ohio. He served in various capacities with Hope Natural Gas Company and East Ohio Gas Company, and in 1918 was elected vice president and general manager of Peoples Natural Gas Company. He became president in 1933.

ENGENE COSTE, 81, petroleum geologist and organizer of Canadian Western Natural Gas, Light, Heat & Power Company, died January 22 at Toronto, Canada. He was credited with discovery of the Essex gas field, which served Detroit, the Welland field in Ontario, and the Bow Island gas field in Alberta, Canada. He later obtained control of the latter field and the Canadian Western Company was organized to construct a 165-mile pipe line to Calgary, at that time the longest line in the world. At the time of his death he was connected with Eugene Coste & Company, consulting petroleum engineers.

J. D. RUSHING, 31, an employee of R. Olson Oil Company, Oklahoma City, was killed January 29 when he fell from a derrick on a company lease 17 miles southeast of that city.

Acetylene Association to meet in Milwaukee

The 40th convention of the International Acetylene Association is to be held in Milwaukee, on April 10, 11 and 12. Convention headquarters will be at the Schroeder Hotel.

The program will include a scientific forum on oxy-acetylene cutting of metals, a series of round-table discussion meetings, and, on each of the three days of the convention, a group of technical sessions, at which will be presented many interesting papers by outstanding technical men and experts in applications of the oxy-acetylene process of welding, cutting, and heat treating. Announcements of subjects and speakers are to be made at an early date.

Texas Metals Society plans short course at Houston

A short course on fundamentals of Ferrous Metallurgy has been announced by the Texas Chapter, American Society for Metals, with lectures starting February 29 at the Houston Engineers Club.

The course has been divided into two sections of four lectures each, the first to cover raw materials and the processing methods used in production of raw ingot steel and the second to study the nature and properties of steel and the principles involved in its treatment. Alex Vallance, Reed Roller Bit Company, will give the first four lectures, and C. F. Lewis, Cook Heat Treating Corporation, the second group.

Cost of the course will be $1 to members and $5 to non-members of the society. It includes a bound text. Enrollment applications are being accepted by C. F. Lewis, Cook Heat Treating Corporation, P. O. Box 262, Houston.

NLRB orders election at Wichita Falls

Production and maintenance employes of the Tucker Oil Company, Wichita Falls, Texas, were ordered by the National Labor Relations Board on January 31 to hold a secret election within 30 days to determine whether they desire to be represented by the Oil Workers Union (CIO) for collective bargaining purposes.

It was brought out during hearings at Wichita Falls last December that the union conducted an organizational campaign among company employes early in 1939, and in July requested the company to bargain collectively with it. Controversy arose as to whether the union actually represented the employes and it was agreed that an election should determine the issue.

New edition of East Texas oil field directory

A new edition of the East Texas Oil Field Directory, published by G. E. Wimberly, Kilgore, Texas, is now available for distribution. It gives the names and addresses of 936 lease owners in the East Texas field, and also those operating in Talco, Sulphur Bluff and the Texas portion of the Rodessa field. Added features are the names and addresses of field superintendents of operators; leases and wells operated, and a tabulation of refineries, gasoline plants and pipe line systems.

Gasoline weakness threat to crude oil prices

The markets are giving a generally unsatisfactory performance, despite extraordinary demand for heating oil and consequent rising prices for that product.

Particularly disturbing was the reduction last week of crude prices in California, averaging about 10 cents a barrel and affecting fields of the Los Angeles basin and the San Joaquin valley. For that reduction had not been generally anticipated, despite some weakening lately in the markets for gasoline and fuel oils on the Pacific Coast. The price cut was a surprise especially outside the West Coast region, as the crude markets east of California have not appeared to be in any imminent danger, while weaknesses in the California situation had not been given great national attention.

California Prices Cut

The official statement of Standard Oil Company of California in connection with its reduction of crude prices was as follows:

"Standard Oil Company of California announces, effective 7 a.m. February 1, 1940, a reduction in prices for its current purchases of crude oil ranging from 4 to 15 cents per barrel. This reduction is made because of a substantial weakening in fuel oil prices at the beginning of the year, and the new crude prices reflect this to the extent of the fuel oil content of the various gravities of crude."

The company did not supplement this statement with any detailed discussion of the fuel oil situation, but inasmuch as weakened fuel oil prices were held responsible for the crude cut, the recent history of the fuel oil market came under close scrutiny. And the records showed that when the now-abandoned crude price schedule was adopted in 1936, Bunker "C" fuel oil was 95 cents a barrel. In 1937 that oil rose to $1.10. But in 1938 it declined to $1 and then to 90 cents. And finally, at the beginning of this year, the market was reduced by competition to 75 cents a barrel, or to a level 15 cents lower than when the old crude prices were established.

Cut Is Protested

A protest against the recent cut in California crude prices announced by Standard Oil Company last week was issued by A. L. Aubert, president of Oil Producers Agency, who said the action was entirely unjustified in view of the present curtailment situation, and the fact that oil is going out of storage causes independent producers to feel they are not getting credit for their efforts in line with voluntary crude curtailments.

It was pointed out in Aubert's protest that seven million barrels were withdrawn from storage last year, that no oil is now going into storage, and that the current production is limited to demand. During the week ended February 3 the state's production averaged 591,500 barrels daily, being 3000 barrels daily under the quota set for February by the Central Allocation Committee and representing a new low for the state under the voluntary curtailment program.

Fuel oil prices in California recently were lowered, and gasoline prices have been declining in recent weeks. It has been reported, moreover, that automobile drivers patronizing some service stations regularly have been favored lately with deductions from the regular retail postings for gasoline.

California's Stock Situation

The weakness of California's gasoline market reflects the substantial surplus of that product in storage in the state. In the week ended January 27 gasoline went into storage at the average rate of 19,571 barrels daily, the inventory having increased 137,000 barrels within the seven days.

Total stocks of finished and unfinished gasoline in California January 27 amounted to 16,948,000 barrels, or 16.9 percent more than the 14,500,000 barrels held at the corresponding time a year ago. Stocks for the United States as a whole, substantially excessive, are only 12 percent greater than at this time last year.

California's stocks of both heavy and light fuel oils, however, are lower now than a year ago. The total inventory of gas oil and distillate fuel in the state January 27 was reported at 9,230,000 barrels, as compared with 10,773,000 barrels a year previously, a decrease of 14 percent. Stocks of residual fuel oil were down to 79,453,000 from 87,649,000 barrels, a decline of 9.4 percent.

Gasoline Prices Decline

Outside of California, the markets were featured last week by further sagging of the prices of refined and natural

PRODUCT PRICES

	Range Last Week (Cents a gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
62 Octane and Under	3¾	4¼	—⅛	—⅛
63-66 Octane	4	4½	—⅛	...
67-69 Octane	4¼	4¾	—⅛	—⅛
70-72 Octane	4½	5	—⅛	—⅛
Mid-Western Tank Car:				
62 Octane and Under	3¾	4¼	—⅛	...
63-66 Octane	4	4⅛	—⅛	—⅛
67-69 Octane	4¼	4¾	—⅛	—⅛
70-72 Octane	4½	5	—⅛	—⅛
NATURAL GASOLINE				
Grade 26-70:				
F. O. B. Group 3	2	...	—¼	...
F. O. B. Breckenridge, Texas	1¾	...	—¼	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3¾	4¼	+⅛	...
42-44 water white	3⅞	4⅝	+⅛	...
Mid-Western Tank Car:				
41-43 water white	3¾	4¼	+⅛	...
42-44 water white	3⅞	4⅝	+⅛	...
FUEL OILS				
Mid-Western Tank Car:				
Range Oil	3¾	4	+⅛	+⅛
Gas and Fuel Oils:				
No. 1 Prime White	3¾	3⅞	+⅛	+⅛
No. 1 Straw	3⅝	3¾	+⅛	+⅛
No. 2 Straw	3½	3⅝	+⅛	+⅛
No. 3	3⅜	3½	+¼	+⅛
No. 5 (per bbl.)	65	70	...	...
No. 6 (per bbl.)	50	55	+5	+5

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1937:						
August 28	[5]3,731,450	3,425,000	309,506,000	66,997,000	112,111,000	
September 25	3,666,300	[5]3,455,000	307,974,000	65,620,000	116,472,000	
1938:						
March 19	3,433,550	3,080,000	306,380,000	[1]93,192,000	122,067,000	
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
December 31	3,201,450	3,115,000	273,024,000	71,695,000	29,082,000	115,741,000
1939:						
January 28	3,248,250	3,235,000	271,110,000	77,279,000	26,583,000	112,766,000
February 25	3,328,850	3,185,000	271,758,000	84,597,000	23,419,000	110,252,000
March 25	3,382,350	3,225,000	273,915,000	87,561,000	21,487,000	107,551,000
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
May 27	3,585,250	3,405,000	278,289,000	84,152,000	26,992,000	109,386,000
June 24	3,452,800	3,430,000	272,297,000	81,733,000	30,239,000	111,726,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[7]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[1]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 6	3,584,450	3,370,000	238,581,000	82,002,000	32,183,000	105,247,000
January 13	3,592,200	3,520,000	238,249,000	84,326,000	30,326,000	104,712,000
January 20	3,637,450	3,510,000	237,571,000	85,180,000	28,888,000	104,582,000
January 27, 1940	3,611,600	3,470,000	.....	87,914,000	27,407,000	103,015,000
January 28, 1939	3,248,250	[8]3,213,000	[4]271,110,000	77,279,000	32,807,000	116,373,000
Change in past year.	+10.9%	+8.0%	—12.4%	+13.8%	—16.5%	—11.5%

[1] All time peak. [2] Peak for 1939. [3] Lowest since April, 1922. [4] Stocks, January 21, 1939. [5] Peak prior to 1939. [6] Lowest for year. [7] Lowest since October, 1922, due to the shutdown of six Mid-Continent states. [8] January, 1939, daily average.

California Crude Prices

Reductions of California crude prices, as initiated by Standard Oil Company of California, effective February 1, ranged from 4 to 15 cents a barrel. The new prices, by fields, will appear in these columns next week. The old schedule, in effect prior to February 1, was last published January 1, 1940, page 51.

gasolines on the one hand and additional advances of prices for fuel oils and kerosene on the other.

Practically all quotations on all grades of refined gasoline were off another ⅛ cent a gallon, and natural gasoline was offered for ¼ cent less, prices having been lowered to the extremely low levels of 2 cents a gallon in the Upper Mid-Continent and 1¾ cents f.o.b. Breckenridge, Texas.

Low octane gasoline, 62 and below, was quoted late last week by Oklahoma and Kansas refiners at 3¾ to 4⅛ cents a gallon, or within ⅛ cent of the prices of 3⅝ to 4¼ cents at this time last year, which were near the lowest levels in the history of the industry.

General Crude Cut Threatened

In the spring, summer and early fall of 1939, the prices of gasoline gradually improved to a peak of 4½ to 4¾ cents for the low octane classification. Those top prices were maintained through November, but prices then started on the decline that has extended to now. Present prices are, therefore, about ¾ cent a gallon lower than those of last fall.

Considering this material reduction in the amount of revenue that can be derived by refiners from a barrel of crude, the crude price structure of the whole country east of California now appears to be in definite danger.

From a 42-gallon barrel of crude, the refiner is obtaining an average yield of about 46 percent of gasoline, or about 20 gallons. And for the 20 gallons of gasoline he now obtains about 15 cents less than he did last November for the gasoline yield of a barrel of crude, considering the decline of ¾ cents a gallon in the price.

To some extent this loss in revenue from gasoline has been compensated by better prices for fuel oils, lubricants, and kerosene. But gasoline is the industry's principal product, and it necessarily must carry much weight in determining how much the refiner can afford to pay for his raw material. Consequently, on the basis of current gasoline prices, a general reduction of 10 to 15 cents a barrel in crude prices in the Mid-Continent appears to be a definite threat.

Fuel Oil and Lubricants

Increases of ⅛ cent a gallon were made last week in the prices of kerosene, range oil, and all the lighter fuel oils, in reflection of the continued exceptionally large demand induced by the protracted cold weather. Even at the higher prices, supplies were difficult to obtain, not only because of relatively small stocks of refiners and resellers, but also because of the handicaps imposed by the adverse weather on all forms of transportation.

Heavy fuel oils also continued in strong demand, and with stocks relatively low, prices were advanced 5 cents a barrel in some instances.

The markets for lubricants remain firm at the greatly improved price levels, but prices have been easing in some cases.

Excess gasoline chief flaw in statistics

The latest weekly statistics of the industry reflected curtailment of both crude production and refinery runs, and gasoline production consequently was reduced somewhat, but not enough to prevent another large addition of that product to storage. The accumulation of gasoline stocks reflected also the adverse weather, which at the same time accelerated withdrawals of fuel oils from storage.

Production and Runs

United States crude oil production decreased 25,850 barrels to 3,611,600 barrels daily, at which level it was 10.9 percent greater than in the corresponding week last year. The new rate of output was about 40,000 barrels in excess

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

STATE OR DISTRICT	Bureau of Mines Estimate of Daily Demand (Jan.)	State Allowable in Jan.	BARRELS DAILY FOR WEEK ENDED Feb. 3	Jan. 27
TEXAS—				
Texas Panhandle	.....	.....	69,900	82,750
North Texas	.....	.....	83,850	83,000
West Central Texas	.....	.....	30,300	32,050
West Texas	.....	.....	201,300	245,150
East Central Texas	.....	.....	63,400	86,700
East Texas Field	.....	.....	394,200	397,250
South Texas	.....	.....	196,850	212,100
Texas Gulf Coast	.....	.....	202,850	236,500
Total Texas	1,411,000	1,376,000*	1,242,650	1,375,500
CALIFORNIA—				
Long Beach	.....	.....	46,100	47,200
Midway-Sunset	.....	.....	44,700	57,500
Kettleman Hills	.....	.....	47,300	45,900
Wilmington	.....	.....	83,200	83,200
Others	.....	.....	370,200	374,400
Total California	593,900	599,000†	591,500	608,200
OKLAHOMA—				
Oklahoma City	.....	.....	87,600	100,100
Seminole Area	.....	.....	92,510	104,115
Others	.....	.....	227,760	225,860
Total Oklahoma	433,900	433,900	407,870	430,075
ILLINOIS—				
Salem	.....	.....	205,100	210,100
Louden	.....	.....	71,750	76,750
Other New Pools	.....	.....	65,100	70,100
Old Pools	.....	.....	8,000	8,000
Total Illinois	314,800	.....	349,950	364,950

STATE OR DISTRICT	Bureau of Mines Estimate of Daily Demand (Jan.)	State Allowable in Jan.	BARRELS DAILY FOR WEEK ENDED Feb. 3	Jan. 27
LOUISIANA—				
North Louisiana	.....	.....	69,650	69,250
South Louisiana	.....	.....	203,550	202,300
Total Louisiana	254,200	268,192	273,200	271,550
KANSAS	160,600	160,600	181,600	167,750
NEW MEXICO	101,900	101,900	103,400	109,250
EASTERN STATES—				
Pennsylvania Grade	.....	.....	78,700	79,250
Others, Eastern	.....	.....	23,500	24,000
Total Eastern States	100,700	.....	102,200	103,250
MOUNTAIN STATES—				
Wyoming	.....	.....	64,500	60,250
Montana	.....	.....	17,550	17,300
Colorado	.....	.....	3,700	4,000
Total Mountain States	78,000	.....	85,750	81,550
MICHIGAN	61,000	65,000	64,850	66,200
ARKANSAS	59,700	71,200	70,250	70,400
MISSISSIPPI	.....	.....	4,600	4,500
NEBRASKA	.....	.....	100	100
‡Total 8 Prorated States	3,076,200	3,079,793	2,935,320	3,099,925
Total United States	3,569,500	.....	3,477,920	3,654,275

* Daily average, considering Saturday-Sunday-Wednesday shutdowns and various exemptions. Total daily allowable effective February 1, 1,390,151 barrels on full-time production.
† Recommendation of Central Committee of California Oil Producers.
‡ Texas, California, Oklahoma, Louisiana, Kansas, Arkansas, Michigan, New Mexico.

of indicated average daily market demand for January, as estimated by the Bureau of Mines.

Crude runs to stills were lowered 40,000 barrels to 3,470,000 daily, and then were 8 percent above the average for January of last year.

Gasoline Situation

Having declined to 10,986,000 barrels for the week ended January 27, gasoline production was 537,000 barrels smaller than in the preceding 7-day period, and almost down to the average level of January, 1939.

But in spite of the sharp curtailment of refinery output, there was an addition of 2,034,000 barrels of gasoline to storage, against an addition of only 854,000 barrels the week before. The stocks of the country rose to 87,914,000 barrels, at which level they were 13.8 percent higher than one year previously.

Fuel Oils

While gasoline was going into storage, fuel oils were coming out. The withdrawal of gas oil and distillate fuel for the week of January 27 amounted to 1,481,000 barrels, as cold weather maintained consumption at a high level. The stocks came down to 27,407,000 barrels and then were 16.5 percent lower than a year previously, although demand for the light fuel oils is running more than 15 percent above the trend of a year ago.

Stocks of residual fuel oil came down by a similar amount of 1,567,000 barrels, indicating that industrial activity of the nation continued at a high level. The remaining supply of 103,015,000 barrels was 11.5 percent smaller than that held a year before, whereas demand is up around 10 percent.

Crude oil stocks totaled 237,571,000 barrels on January 20, according to the Bureau of Mines. They are not greatly above the 17-year low that they reached last fall, and are about 12 percent smaller than at this time a year ago.

Oil industry losing ship fuel business rapidly

Assuming 60 percent of the merchant ships sunk thus far in the war were vessels using oil for fuel, the industry has been losing merchant marine business faster than new ships can be built to replace it.

From September 3, 1939, through January 25, 1940, total tonnage of ships sunk by European belligerants is estimated at 1,071,561, representing 302 vessels, a substantial number of which were tankers. The average tonnage sunk per day is running just a little over one third of what it was during the first five months of the last World War.

Great Britain has been the greatest loser, being charged with loss of 144 ships of 538,272 aggregate tons. Neutral nations combined take second rank in the listing, having lost 118 ships with a total aggregate tonnage of 332,932. Germany has lost 27 ships aggregating 141,615 tons, while France has lost only 13 with a combined total tonnage of 58,742.

Figures are not available on the number of British and French submarines in commission, but it is estimated that German U-boats still in commission number about 60.

PIPE LINE NEWS

Award contract for 60-mile gas line in Michigan

Dow Chemical Company, of Midland, last week awarded construction contract to H. L. Gentry Engineering Company for 60 miles of 6-inch gas pipe line between the company's Midland plant and the Temple oil field. Construction will be started immediately.

Dow Chemical Company has contracted for the purchase of gas from the O. H. Grimes casing head gasoline plant, now under construction in the Temple field and scheduled to start operations by March 1. The plant will process about 4,000,000 feet of gas daily.

Sohio Corporation laying 7-mile crude line in Michigan

Sohio Corporation is laying 7 miles of 4-inch main line in the Tallmadge-Walker field, Ottawa and Kent counties, Michigan, to replace former gathering lines and step up capacity from recent west extensions in the field.

H. C. Price gets welding contract on three projects

H. C. Price, Inc., Bartlesville, has been awarded electric welding contracts on three construction jobs on which work has already begun. These are as follows: Sohio Pipe Line Company's 250-mile 12-inch line from Stoy, Illinois, to Lima, Ohio. General contractors are Sheehan Pipe Line Construction Company and Truman-Smith Construction Company; Panhandle Eastern Pipe Line Company 140-mile line of 22- and 24-inch loops in Kansas, Missouri and Illinois. General contractors are T. R. Jones, Inc., and I. C. Little; Shell Pipe Line Company's 6-inch and 8-inch 10-mile line in Illinois. General contractor for this job is I. C. Little.

To install gathering system at Mill Shoals, Illinois

Bell General Oil Corporation has been organized by Bell Oil & Gas Company, Tulsa, and General American Oil Company, Dallas, to develop joint holdings in the Mill Shoals field, White County, and to install a crude gathering system. Erection of a crude refinery in Illinois is also to be given consideration. Officers are M. L. Freese, Tulsa, president; T. F. Morrow, Dallas, vice president; A. H. Meadows, Dallas, secretary; and Benedict I. Lubell, Tulsa, treasurer. Louis Mack, petroleum engineer, is supervising the Illinois development, with office at Fairfield.

RFC tentatively approves natural gas pipe line plans

Plans for construction of a 1000-mile natural gas pipe line from Sherman and Hansford counties, Texas, to the iron ore fields of Minnesota were given tentative approval last week by officials of the Reconstruction Finance Corporation before whom, on January 30, Colonel Ernest O. Thompson of the Texas Railroad Commission laid the details of the proposed $33,000,000 project.

It was explained that the pipe line is to be built by Kansas Pipe Line & Gas Company, a corporation now operating in Kansas, which will extend lines southward into the new gas fields in the two Texas counties and north to serve iron ore deposits of Minnesota now being developed.

The line, to have a carrying capacity of 120,000,000 cubic feet of gas per day and to serve 120 cities and towns in addition to the iron works, has already been approved by the Federal Power Commission and, it was said, only final approval of financing plans, including a loan of $11,500,000 from the RFC, is necessary.

Complete 10-mile East Texas lateral

Sinclair Refining Company last week began running oil from the Long Lake field, East Texas, through the 10-mile 8-inch lateral built from its East Texas 12-inch carrier. The field gathering system embraces about 31 miles of 4-inch line. The company relieved Gulf Refining Company of the entire field allowable, averaging about 2200 barrels daily, in order to permit the latter to utilize its nearby trunk line for the handling of New Mexico and West Texas crudes. The new crude purchaser retained the old price posting of $1.08 per barrel.

Hearing on Pennsylvania gas firm merger February 16

The Pennsylvania Public Utility Commission last week adjourned until February 16 hearing on petition of four natural gas companies to form one $37,550,000 organization. Manufacturers Gas Company, Pennsylvania Fuel Supply Company, Greensboro Gas Company and the present Manufacturers Light & Heat Company seek to form a new company to be known as Manufacturers Light & Heat Company.

Texas commission schedules hearings

The Texas Railroad Commission has scheduled several hearings for February on allowables and operating rules for various fields.

On February 9 the commission will hear the application for an increased allowable in Yates, Gulf-McElroy, Church-Fields, McClintic, Waddell, Estes, North Ward, Keystone (Lime), Keystone (Colby Sand), Penwell, and Foster.

On February 7, the commission will hear an application for an increase in the allowable for the Mankins pool in Archer County. Also set for that day is a hearing on the application of Gulf Oil Corporation to operate a pressure maintenance project in the North Ward field, Ward County.

CRUDE OIL PRICE SCHEDULES

MID-CONTINENT GRAVITY SCALE PRICES—Posted October 11-13, 1938

(Some fields of Mid-Continent have flat price postings, and are shown separately)

Gravity	[7]Okla.-Kans.	[10] North La.-Ark.	[9] Schuler, Ark. 9-13-39	North & W. Central Tex.	East Central Tex.	Gray Co. Tex.	Carson, Hutchinson Co. Tex.	[1]Tomball Tex. Type	West Tex.-New Mex.	[2]Gulf Coast (Tex.-La.) 10-2-39	[3]Some La. Gulf Areas 10-2-39	Jennings, La.	[4]Anahuac, Tex. Type 10-2-39	[5]Refugio, Tex. Type 10-2-39	[6]Mirando, Tex. Type 10-2-39	[8]Salt Creek, Wyo.
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	*$0.53	*$0.86	*$0.86	.....	*$0.81	*$0.91	*$0.86	.....
20–20.9	$0.60	.....	.....	.....	.....	.....	.....	.....	.55	.88	.88	.....	.83	.93	.88	.....
21–21.9	.63	.....	.....	.....	.....	.....	.....	.....	.57	.90	.90	.....	.85	.95	.90	.....
22–22.9	.66	.....	.....	.....	.....	.....	.....	*$0.95	.59	.92	.92	.....	.87	.97	.92	.....
23–23.9	.69	.....	.....	.....	*$0.78	.....	.....	.97	.61	.94	.94	.....	.89	.99	.94	.....
24–24.9	.72	*$0.73	*$0.63	*$0.71	.80	.....	.....	.99	.63	.96	.96	.....	.91	1.01	.96	.....
25–25.9	.75	.75	.65	.73	.82	.....	.....	1.01	.65	.98	.98	.....	.93	1.03	.98	.....
26–26.9	.78	.77	.67	.75	.84	.....	.....	1.03	.67	1.00	1.00	.....	.95	1.05	1.00	.....
27–27.9	.81	.79	.69	.77	.86	.....	.....	1.05	.69	1.02	1.02	.....	.97	1.07	1.02	.....
28–28.9	.84	.81	.71	.79	.88	*$0.72	*$0.67	1.07	.71	1.04	1.04	.....	.99	1.09	1.04	*$0.86
29–29.9	.87	.83	.73	.81	.90	.74	.69	1.09	.73	1.06	1.06	.....	1.01	1.11	1.06	.88
30–30.9	.90	.85	.75	.83	.92	.76	.71	1.11	.75	1.08	1.08	.....	1.03	1.13	1.08	.90
31–31.9	.92	.87	.77	.85	.94	.78	.73	1.13	.77	1.10	1.10	*$0.87	1.05	1.15	1.10	.92
32–32.9	.94	.89	.79	.87	.96	.80	.75	1.15	.79	1.12	1.12	.89	1.07	1.17	1.12	.94
33–33.9	.96	.91	.81	.89	.98	.82	.77	1.17	.81	1.14	1.14	.91	1.09	1.19	1.14	.96
34–34.9	.98	.93	.83	.91	1.00	.84	.79	1.19	.83	1.16	†1.16	.93	1.11	1.21	1.16	.98
35–35.9	1.00	.95	.85	.93	1.02	.86	.81	1.21	.85	1.18	.....	.95	1.13	1.23	1.18	1.00
36–36.9	1.02	.97	.87	.95	1.04	.88	.83	1.23	.87	1.20	.....	.97	1.15	1.25	1.20	1.02
37–37.9	1.04	.99	.89	.97	1.06	.90	.85	1.25	.89	1.22	.....	.99	1.17	1.27	1.22	1.04
38–38.9	1.06	1.01	.91	.99	1.08	.92	.87	1.27	.91	1.24	.....	1.01	1.19	1.29	1.24	1.06
39–39.9	1.08	1.03	.93	1.01	1.10	.94	.89	1.29	.93	1.26	.....	1.03	1.21	1.31	1.26	1.08
40+	1.10	1.05	.95	1.03	1.12	.96	.91	1.31	.95	1.28	.....	1.05	1.23	1.33	1.28	1.10

* Minimum price and applies also to purchases of lower gravity.
† Maximum price and applies also to purchases of higher gravity.
[1] Tomball, Raccoon Bend (Deep) and Satsuma.
[3] Includes Amelia, Barbers Hill, Big Creek, Blue Ridge, Clear Lake, Cotton Lake, Esperson, Fannett, Goose Creek, Hankamer, Lovells Lake, Lochridge, Moore, Mykawa, Nome, Orange, South Liberty, Spindle Top, Sugar Land, Thompsons, Webster, and West Beaumont.
[4] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Orange, Pierce Junction, Batson, Caplen, Humble, North Dayton, Saratoga, Sour Lake, South Esperson, Spindle Top, West Orange, Thompson (deep), and Raccoon Bend (shallow) fields.
[5] Includes Saxet, E. White Point, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.
[6] Includes Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields.
[7] Oklahoma Pipe Line and Magnolia schedules.
[8] Includes La Barge, Midway Dome, Dutton.
[9] Also Buckner, Village, Magnolia.
[10] Add 10 cents for Bunkie and Eola field prices.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.73	10-12-38
Louisiana:		
Garden Island	1.24	10-12-38
Gibson	1.04	10-11-38
Lafitte	1.04	10-12-38
Texas:		
Cayuga	.78	10- 2-39
East Texas	1.10	10-12-38
Talco	.65	10- 2-39
Livingston, Cleveland	1.10	10-12-38
Van	.93	10-12-38
Pettus	1.29	10-12-38
Pecos County	.78	10-12-38
Pecos Shallow	.65	10-12-38
Luling	.87	10-12-38
Lytton Springs	.99	10-12-38
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	.96	10-11-38
Flour Bluff-Jim Wells Co.	1.23	10-11-38
Guerra	1.06½	5- 8-39
Seabreeze, Willow Slough, La Belle, Hardin, S. China	1.10	9-14-39
Clay Creek	.85	10-13-38
Conroe	1.27	10-11-38
Long Lake	1.08	10-19-38

Middle West Prices

Lima, Ohio	$0.90	10-13-38
Illinois	.95	6- 8-39
Illinois Basin	1.05	6- 8-39
Lake Centralia-Salem, Illinois	1.05	10-21-39
Princeton, Indiana	.95	6- 8-39
Griffin, Sw., Ind.-Se. Ill., Sand	.95	10-10-39
Griffin: McClosky Lime	.85	10-10-39
Western Kentucky	1.00	6- 8-39
Birk City, Western Kentucky	.90	6- 8-39
Kentucky River, Eastern Ky.	1.10	6- 9-39
Big Sandy River, Eastern Ky.	1.02	6- 9-39

Michigan Prices

	Flat Price	Date Posted
Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland	$1.02	10- 9-39
Buckeye, Edenville, Bentley, Beaverton	1.00	10- 9-39
Freeman, Sherman, Clare	.97	10- 9-39
Arenac, Ogemaw, W. Branch	.87	11- 9-39
Southwest (Shallow):		
Allegan, Kent Counties	1.03	10- 9-39
Van Buren Co., Bloomingdale	1.03	11- 9-39
Zeeland	.85	10- 9-39
Bangor	.83	10- 9-39

Rocky Mountain States Prices

Colorado:		
Canon City, Ft. Collins, Wellington, Moffat and Florence	.90	10-11-38
Iles, Light	.98	10-11-38
Iles, Heavy	.92	10-11-38
Montana:		
Cat Creek—Cut Bank	1.10	10-11-38
Sunburst	.90	11-16-37
Dry Creek	.92	10-11-38
New Mexico:		
Artesia	.77	10-11-38
Hogback	1.00	10-11-38
Wyoming:		
Big Muddy	.98	10-11-38
Byron	.55	10-11-38
Elk Basin	.90	10-11-38
Frannie, Light	.55	10-11-38
Frannie, Heavy	.42	10-11-38
Garland	.50	10-11-38
Grass Creek, Light	.90	10-11-38
Grass Creek, Heavy	.40	10-11-38
Hamilton Dome	.35	10-11-38
Lance Creek	.77	10-11-38
Mill Creek	.72	10-11-38
Oregon Basin	.50	10-11-38
Osage	1.30	10-11-38
Poison Spider	.59	10-11-38
Rock Creek	1.00	10-11-38
Tensleep	.646	10-11-38

Pennsylvania Prices

	Flat Price	Date Posted
Bradford-Allegany	$2.75	1- 1-40
National Transit Lines	2.75	1- 1-40
Sw. Pa. Pipe Line	.40	1- 1-40
Eureka Pipe Line	.34	1- 1-40
Corning Grade, Ohio	1.12	11- 4-39

Major Price Changes

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
Aug. 11, 1933	Up 10	.....	.....
Aug. 24, 1933	.....	Up 10	.....
Aug. 30, 1933	Up 15	.....	.....
Sept. 6, 1933	Up 10	Up 10	Up 15
Sept. 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
Nov. 6, 1934	Cut 25	.....	.....
Dec. 6, 1934	Cut 25	.....	.....
Jan. 4, 1935	Up 15	.....	.....
Feb. 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
Aug. 29, 1935	.....	.....	Cut *1
Sept. 6, 1935	Up 5	.....	.....
Oct. 29, 1935	Up 15	.....	.....
Nov. 1, 1935	.....	.....	Up *28
Nov. 18, 1935	Up 15	.....	.....
Dec. 6, 1935	.....	.....	Up *9
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Feb. 26, 1936	.....	.....	Up †5
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
March 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	.....	Cut 20	.....
Jan. 21, 1939	Up 12	.....	.....
Feb. 2, 1939	Up 8	.....	.....
March 6, 1939	Up 12	.....	.....
Oct. 6, 1939	Up 25	.....	.....
Nov. 1, 1939	Up 15	.....	.....
Dec. 1, 1939	Up 10	.....	.....
Jan. 1, 1940	Up 25	.....	.....

* Signal Hill 26 gravity.
† Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interests.
Texas—3¾ cents or 2½ percent, whichever is higher.
Louisiana—From four to 11 cents a barrel, depending upon gravity.
Arkansas—2.6 percent of gross market value.
Montana—Two percent of gross value at well and ⅜ of 1c per barrel.
New Mexico—Severance tax of 2 percent on oil and gas.
Wyoming and New Mexico—Production tax based upon state and county assessments.
California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.

WORLD-WIDE DEVELOPMENTS

Edited by WM. V. GROSS, Associate Editor

European War

Rumania in dilemma over division of oil exports

Rumania's dilemma, from an oil standpoint, continued to grow more acute as the week drew to a close. Germany and the Allies made stronger demands, complete fulfillment of which threatened to precipitate war in the realm of King Carol.

German envoys have told Rumania that it must supply more oil to the Reich—that such was a matter of life and death with the Nazi regime. England and France, on the other hand, have told Rumania in effect that she must not.

As last week closed Rumania appointed Gheron Netta, general secretary of the ministry of industry, petroleum commissioner, and Ion Dimitriud, former head of the department of studies of the national bank of Rumania, his assistant. Their duties announcedly are to assure the Rumanian army plenty of fuel in the case Rumania becomes involved in the European war. Oil companies appear not so sure of this restriction of activity.

And while the attitude of Rumania is generally supposed to be more friendly toward England and France than it is toward Germany, it is common knowledge that Germany is furnishing Rumania with certain war supplies of which the former has a surplus. Referring to the formation of Netta's department, the French embassy in Bucharest observes: "If the goal of the commission is to considerably increase the provisioning of Germany with oil, France can only entirely approve the attitude of Britain, which is to support to the very end the policy of opposing Germany in the Rumanian petroleum question."

On Monday the Bucharest press was reported as stating that England and France had threatened to break off economic relations with Rumania unless the question of oil for Germany is settled to their satisfaction. Germany has told Rumania in no uncertain terms that she will "take other measures" if Rumania does not increase shipments of petroleum into Germany.

The Rumanian cabinet is represented as arguing that it cannot discontinue economic cooperation with Germany because more than 40 percent of her entire foreign trade lies in that quarter.

England is said to be prepared to impose restrictions on her trade with Rumania if the new oil commission interferes with normal flow of oil to France and Britain.

Netta's appointment as head of the Rumanian petroleum commission drew rapid action from Italy which was crystallized in the cancellation of a large part of the latter's orders for Rumanian oil. Italy has been taking about 20 percent of Rumania's petroleum exports, but cannot afford to pay the $44.56 a ton (better than $6 per barrel) the Allies and Germany are reported bidding for Rumanian crude.

When spring thaws set in, if Rumania is not already converted into a battlefield by then, it is thought the price will go much higher. Currently oil in desired quantities cannot be moved into Germany as the Danube is frozen and there is a shortage of tank cars for rail transport. Germany is seeking to place orders for tank cars in Belgium. In addition, the number of passenger trains from Bucharest to Budapest, Hungary, has been reduced to two to make room on the rails for additional trains of tank cars.

Opening of the meeting of the Balkan Entente in Belgrade, Yugoslavia, February 2 was featured by German pressure for Rumania to accept a plan whereby Rumanian industry, including oil, would be synchronized with the Reich program and become part of Germany's 4-year plan for self sufficiency. Compensation to Rumania would come in the form of shipments of munitions and other manufactured articles.

Such a plan would have a tendency to stop shipments of oil to France and England, except in negligible quantities.

Although British interests early in the week were reported forging ahead of Germany in capturing Rumanian trade, part of the Rumanian press has adopted an anti-allies tone, accusing Britain of interfering with Rumania's internal affairs in an intolerable manner in the oil controversy.

German decree takes over oil industry in Polish territory

Hans Frank, Hitler-appointed governor general of that portion of Poland occupied by German forces, February 1 issued a decree requisitioning all oil supplies in that territory and placing all producing and refining companies under the authority of customs administration.

New York radio engineers on the same day picked up a short-wave report from Europe stating that a new Russian purge has been ordered and that a brother-in-law of Joseph Stalin had been "liquidated as chief of the Galician (Polish) oil fields because he refused to surrender them to Germany," it was announced by the Columbia Broadcasting System. The report was supposed to have come from Sweden.

Mexico

Claim state department encouraged expropriation

Mexico's determination to take what it wants, whether it can pay for it or not, has been stiffened by the attitude of the United States Department of State in dealing with expropriation of the oil industry, it was charged in a statement issued recently by Standard Oil Company of New Jersey.

"The whole structure of international business relations is endangered. If private property can be taken at will and no fair, prompt and adequate payment made for it, the whole basis for relations between states is undermined," the statement said.

It continued with the explanation that the state department itself had expressed this sentiment in a note to Mexico in 1938 and inferred that the department had practically let the matter ride with that utterance.

Criticism of the state department was described by El Nacional, Mexico City newspaper, as revealing the "imperialistic agitation" of the company.

"The attitude of this monopolistic, imperialistic concern is curious," El Nacional said, "as it is well known that Mexico's actions were strictly within the law when the expropriations were decreed. "Furthermore Mexico gave the companies all kinds of opportunities within the law so that the matter might be judged by the supreme court of justice."

Some hope for legal recourse in Mexico was seen, meanwhile, by action of the supreme court in declaring action of the agrarian department of the government as comparable to that of an "instigator of illegal invasion" in the case of the widow of Refugio Armendariz, whose lands were seized on the pretext that they were necessary to enlarge the communal farms of the village of La Florida. Decision of the supreme court represented a reversal of lower court decisions. Incidents providing examples of where Mexico's supreme tribunal has gone against the tenets of the Cardenas regime are rare, but have been more frequent since the beginning of 1940, indicating a swing to the right. Nevertheless, the decision referred to caused quite a stir in Mexico City circles.

Meanwhile, sales of the Mexican government oil administration to interests in the United States have been helped recently by an order from Tide Water Associated Oil Company to fulfill requirements for contracts made in New York. This organization did not buy direct from Mexico, but obtained the

petroleum from Eastern States Refining Company of Houston, which relayed cargoes of products comprised largely of oil derived from Mexican fields.

In explaining the purchase of Mexican oil to satisfy demands for the New York market, Tide Water Associated Oil Company issued the following statement:

"When we are trying to meet the mayor's request for sufficient oil it is not fair to criticize us for buying the oil from a company some people do not like."

R. B. Kahle, president of Eastern States Refining Company, was quoted in the New York press as stating: "A relatively small amount of this oil is Texas crude. The rest of it comes from Mexico, although the exact amount of it varies from day to day."

In his interviews, Kahle inferred that in the beginning, that is, right after expropriation, the Mexican government furnished guarantees that oil furnished his organization was recovered from properties not affected by expropriation, but that such was not the case today. Eastern States Refining Company has valid title to the oil, however," he stated.

Another angle to the Mexican oil situation was furnished during the week when it was reported that expiration of the Japanese-United States commercial treaty already had resulted in an intensive drive by Japan to increase trade with Mexico, particularly in oil. An oil embargo would bring about a serious change in the amount of oil shipped from California to Japan, and the negotiations with Mexico are said to contemplate such an eventuality. Japan also is known to look with a yearning eye upon Mexico's iron reserves.

Mexico's storage is filled to overflowing, and that nation is willing to do business with anyone that comes along, according to information in Mexico City. Japan has taken advantage of this situation, with the result that the only drilling permits issued in Mexico during 1940 have been issued to companies known to be controlled by Japanese money. Mexico, on the other hand, is said to be willing to accept Japan's manufactured goods in return for oil and iron.

Suggestions that the dispute over expropriation of American and British oil properties be referred to the permanent court of international justice at the Hague were rejected during the week by President Lazaro Cardenas on the grounds that oil company cases are still before the Mexican courts.

January 31 Cardenas told foreign correspondents in Mexico City that expropriation of foreign oil properties by Mexico must stand and that due payment will be made as soon as values of the properties are determined. He explained that the difficulty is entirely between the government and private enterprises and that there is no justification for a suggestion involving international arbitration.

Considerable argument is expected to ensue over the approaching conception of the Mexican government's board of valuation experts as to what constitutes "fair" payment for the seized properties. It is general knowledge that the oil companies and the Mexican government are millions apart in their respective opinions of the worth of the properties. Mexico claims the oil company books in its possession show the company properties to have been worth about 113,000,000 pesos, or about $20,000,000 at time of expropriation, which is about 5 percent of the commonly used figure of $400,000,000. This latter valuation Mexico characterizes as "fantastic."

Payment of compensation has not been prompt, the Mexican government declares, only because the oil companies have thrown obstacles in the way of an immediate evaluation of the properties. On the other hand, the companies are said to have felt that to cooperate with the government evaluation engineers would be tantamount to acknowledging that the decisions of the Mexican courts were just.

The Mexican government contended in the statement there was no value to the argument that Mexico will be unable to pay a fair compensation because she has defaulted on her other foreign debts. The statement declares, "The Mexican government now owns a notoriously productive oil industry whose revenue will be preferentially destined to the payment of an indemnity."

Japan

Japan oil purchases not influenced by trade ordinance

Japan's purchases of crude and refined oil from the United States probably will not be influenced by the imperial ordinance scheduled to be promulgated on or before January 26 to prolong rating of the United States as a most favored nation in trade.

The most favored nation clause in the ordinance does not apply to petroleum. The imperial ordinance, as a matter of fact, is regarded in trade circles as little more than a gesture as it also fails to include machinery, raw cotton and metals which, with petroleum, constitute 89 percent of Japan's imports from the United States.

Germany

Germany reported building new synthetic plant

According to advices received in London, Germany is building what will be the largest synthetic gasoline plant in the world. It will convert oil residues and coal from the Silesian mines into motor fuels and will be considerably larger than the Leuna works at Merseburg operated by the I. G. Farbenindustrie, now the biggest synthetic gasoline producing plant in the Reich.

Capacity of the new plant, near Stettin, it is reported, will exceed 105,000,000 gallons a year, more than double the rated capacity of the British Billingham hydrogenation plant of Imperial Chemical Industries, Ltd. Two years, it is stated, will elapse before the works at Stettin will come into full production, but operations will begin in a small way by the middle of 1940.

Germany's 1938 production of synthetic motor fuels totaled 1,100,000 metric tons, coming in nearly equal proportions from three groups of processing plants—the Leuna group, the Braunkohlen Benzine Company's plants at Magdeburg, Bohlen, Zeitz and Schwarzheide, and a number of small plants at Holten, Buchum and Rauxel, in the Ruhr.

Aggregate production from these works should be greater this year as several of these plants were operating only during part of 1938. An output of 2,000,000 tons of synthetic motor fuels, it is estimated, should be attained by Germany in 1940.

Australia

Australia shale extraction plant to start operations

The Glen Davis plant, Australia's first big project for extracting gasoline from shale, is expected to start operations within a few weeks.

The controlling company, backed to the extent of $2,500,000 by the federal and New South Wales governments, estimates that the first year's output will not be less than 10,000,000 gallons. Plans have been made to produce a maximum of 30,000,000 gallons a year, and the gasoline will be run by pipe line from Glen Davis to the nearest railway, 25 miles distant.

With the plant in full operation, Australia hopes to discontinue importing nearly $5,000,000 worth of gasoline each year.

U. S. Exports

Crude and gasoline exports down; fuel oil up

Exports of crude petroleum and gasoline decreased and those of gas and fuel oil and lubricating oil increased in 1939 as compared with 1938, it was reported last week by the Department of Commerce.

Shipments of crude oil to foreign countries, department statistics disclosed, dropped from 77,254,000 barrels valued at $111,641,000 in 1938 to 72,064,000 barrels valued at $92,790,000 last year, and exports of motor fuel declined from 40,269,000 barrels valued at $103,544,000 to 36,513,000 barrels valued at $96,997,000.

Exports of lubricating oil, on the other hand, increased from 9,328,000 barrels, valued at $68,939,000, to 11,865,000 barrels, valued at $90,959,000, and those of gas and fuel oil jumped from 43,833,000 barrels, valued at $56,356,000, to 45,590,000 barrels, valued at $54,405,000.

All told, the shifting demand resulted in a decline in the total value of exports in excess of $5,000,000, but the year's shipments of $335,151,000 (compared with $340,480,000 in 1938) accounted for an appreciable part of the national export total of $3,177,344,000.

Imports of crude oil showed a sharp increase, totaling 34,106,000 barrels valued at $23,289,000 compared with 26,048,000 barrels valued at $18,601,000 in 1938, it was reported.

U. S. FIELD OPERATIONS

PRODUCTION records fell in Illinois with completion of a 9768-barrel Devonian lime well in the Salem field. Wildcats opened new pools in White and Randolph counties. A favorable Devonian showing promised the first oil well in Hancock County, Indiana. A Spencer County wildcat was installing pump after swabbing 10 barrels of oil and 25 barrels of water from the Waltersburg sand.

Encouragement for another active drilling campaign in South Texas was seen in the showing of a wildcat in Refugio County. In Aransas County, one of the deepest producing spots for the section was indicated by a blowout that come while core was being taken at 9335 feet. Flowing a large volume of gas, distillate and water, the well was fired and has destroyed the equipment. What has been found will be determined after the well is filled. Sweden and North Sweden were indicated as connected. A fault well in Guadalupe County promises an initial flow of 100 barrels.

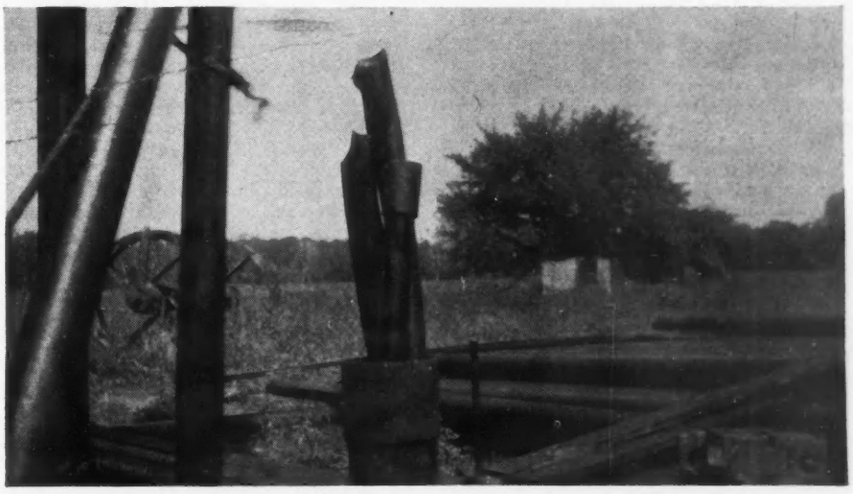
North Texas activity is on the increase. A healthy program there has been given further impetus by adoption of wider spacing by state order. Walnut Bend, Cooke County, was extended southeast, but two failures were recorded for the east portion of Bonita, Montague County.

A new deep oil sand for the Texas Gulf Coast was opened in the Fannett field of Jefferson County by a well that initialed 845 barrels through ¼-inch choke. A 103-barrel well opened a new oil sand at Pickett Ridge, Wharton County.

The fourth test drilled to the 5100-foot oil horizon at North Cowden, West Texas, extended that formation 2¼ miles northwest. A test between the Foster-Johnson and Goldsmith fields was going down to the Holt zone at 5300 feet after drilling through the regular Permian to sulphur water.

Mississippi got its biggest well to date when the seventeenth producer at Tinsley Dome completed for 1850 barrels initial. A dozen tests are active.

Fifty-nine feet of oil sand in a South Louisiana wildcat in Iberville Parish indicated that area's first major strike of the year.



Old wells may often surprise a cleanout crew by giving up more than a just quota of junk. In the well pictured, a fishing job removed 1500 feet of 2-inch tubing from only 900 feet of 7-inch casing. It was little wonder that a crew found it impossible to run another string of tubing into the hole.

A Hunton lime well in Oklahoma's St. Louis field was deepened to the Wilcox, where it produced 2472 barrels. That Pottawatomie County area is one of the most active in the state. A 22-barrel well extended the Bristow pool, Creek County ½-mile to the southeast.

The longest string of casing ever set in New Mexico is to bottom in a hole at Rattlesnake Dome—7405 feet, and plans call for perforating at two levels above where shows were recorded. Operations in Lea County continue to lag, without a reason being assigned.

Illinois

Record producer drilled; 2 new fields opened

Centralia, Ill.—Biggest producer ever drilled in Illinois, Paul Rossi's Brooks 9, SW NE SW 29-2n-2e, Lake Centralia-Salem field of Marion County, started off last Thursday afternoon at the rate of 407 barrels an hour, indicating a potential of 9768 barrels a day. At an elevation of 540 feet the well is producing from Devonian lime pay at 3376-3438 feet. Lime was topped at 3327 feet.

Previous best completion was a McClosky well, also in Section 29-2n-2e, which flowed better than 7000 barrels initially more than a year ago. Rossi's well topped the pay higher than any other well in the field, and is the 31st producer to be completed in the Devonian there.

Another White County field was opened by successful completion in Hardinsburg sand of Carter-Kimzey's Ozonia Johnson 1, SW NW NE 25-6s-8e, 4 miles south of the Stokes field. The wildcat was flowing 31 barrels an hour from sand at 2507-28 feet. Glen Dean was topped at 2466 feet. The well cored Hardinsburg pay last December and was shut down for title work several weeks. There is no other Hardinsburg production in the county.

Randolph moved into the rank of producing counties with completion of a small Benoist well, Ralston and Beattie's Foster 1, C NE SE 31-4s-5w, ½ mile northeast of Sparta, which pumped 80 barrels in 24 hours from sand at 924-36 feet. It was given a 20-quart shot.

The Dix field of Jefferson County was given a slight eastern extension by successful completion of Alma Oil Company's Earl Cunningham 1, W½ NW SE 3-1s-2e, which pumped 120 barrels of oil and 10 barrels of water in 20 hours from Benoist pay at 1983-86 feet. The field is controlled by Carter Oil Company, only operator there besides Alma Oil Company. The Cunningham lease was farmed out by Carter.

A wildcat in Gallatin County apparently had little chance of becoming a producer. It was Angle & Eason's Martin Duffy 1, NE NW NW 25-8s-9e, which was perforated with 34 shots at 2803-11 feet. The hole filled up 200 feet with oily mud and sulphur water. Forty feet of Tar Springs saturation at 2136-82 feet, with a four-foot shale break in the middle of the sand body, was passed up in favor of the McClosky pay.

Two completions and a third well

nearing completion in the Devonian lime shared the spotlight with 2 Rosiclaire tests in the Centralia townsite field. Jones and Deaton's Langenfeld 1, Lot 13, Block 2, Pullen Subdivision Number 3, was acidized with 500 gallons and started off at 84 barrels an hour under ¾-inch choke. Later it settled to 65 barrels an hour. It is producing from pay at 2908-13 feet. Martin et al's Hartman 1, Lot 24, Block 2, Pullen Subdivision Number 3, was flowing 28 barrels an hour from pay at 2907-10 feet after 500 gallons of acid. A north outpost, Taylor Drilling Company's Heiss 3, NW NE 13-1n-1w, two blocks north of production and which a week ago appeared to be a very light producer, was flowing by heads, and at one time was making 50 barrels an hour after a packer was run to seal off water coming in the hole from above the pay at 2908-12 feet. At last report it was making but two tenths of one percent water.

First Rosiclaire test in the townsite pool, Androde et al's Meisenheimer 1, Lot 9, Block 1, Pullen Subdivision Number 3, found pay at 1540-44 feet but last Thursday had 500 feet of fluid, mostly water, in the hole. Second test to set pipe to Rosiclaire was a well on the Halstenberg lot, Lot 10, Block 2, Pullen Subdivision Number 3.

Interest was evidenced in oil circles by announcement of a Carter Oil Company wildcat to be drilled in Coles County, just south of Mattoon—James H. Seaman 1, NW NE SW 35-12n-7e. Rotary tools will be moved on location immediately. Unofficial sources reported the same company was planning a 7000-foot test at Miller 1, SE 7-9n-4e, Shelby County, 6 miles west of Mode, supposedly the first of several deep tests planned for the northern part of the Illinois basin in which several major companies will participate with Carter this year.

In the Bartelso field of Clinton County, third Devonian producer was in sight as Newton & Ward began drilling plug at Gross 1-A, SE SE SW 5-1n-3w, which found pay at 2389-99 feet. Santa Fe Petroleum Company's George Vandeloo 1, NE NW NE 8-1n-3w, was nearing 2000 feet in the same field. Second deep completion at Bartelso, Paul Mosebach et al's Maddux 1-b, SW SW SW 4-1n-3w, was gauged at 940 barrels in 24 hours following a 2000-gallon acid treatment at 2410-34.

Indiana

Hancock County wildcat reported showing favorably

Evansville, Ind.—First production for Hancock County was indicated by favorable showing in the Devonian above 1000 feet at John M. Seip et al's Ira Brock 1, SE SW SW 6-16n-6e, Buck Creek Township. The wildcat was being prepared for test.

A Spencer County wildcat, C. L. Snell's Higgins-Biggerstaff 1, SE SW SE 6-7s-7w, south of Hatfield, was installing pump for initial production test. It swabbed 25 barrels water to 10 barrels of oil from the Waltersburg at 1056 feet after a cement job.

Newton Pipeline Company, Vincennes, has spudded W. D. Crow 1, NE NE 24-1n-9w, Madison Township, Pike County, 1¼ mile north of the 25-year-old Bowman field, producing from the Oakland City (Cypress) sand at about 1250 feet. Nelson Brothers, Princeton, Ind., is contractor.

Horton and Wiggins' D. A. Upham A-1, Decker Township southwestern Knox County, Section 3-1s-12w, was abandoned. Starting at an elevation of 401 feet, the wildcat topped Glen Dean at 1778 feet, Hardinsburg at 1798, Golconda at 1887, Barlow at 1957, St. Genevieve at 2265, McClosky at about 2313 feet and it carred no oil show. Total depth is 2415 feet.

In Harrison Township, Knox County, Newton Pipeline Company's Clyde Like et al 1, wildcat in the NE Donation 171-2n-9w, will be deepened to the Salem. The test has been shut down for several weeks at 1609 feet.

In Point Township of western Posey County, Ray Ryan and Morgan H. Brown's John W. Spencer 1, wildcat in the CE SE SE 26-7s-15w, was drilling ahead for contract depth through the McClosky at 2630 feet after coring fair to good saturation in the Benoist, topped at 2585 feet. The Cypress carried only a slight, non-commercial show. Casing was to be set to test Benoist show.

Just southeast of Griffin, Posey County, D. M. Hillingsworth and Joe Minton's L. P. Hill 1, wildcat in the NW SE NW 7-4s-13w, was drilling at 1800 feet.

South Griffin Area

In the South Griffin field of Posey County, J. S. Roberts' Keck 1, SW NE NE 34-3s-14w, was moving in cable tools to drill out plug and test Aux Vases, topped at 2773 feet. Bates & Lichlyter are contractors. The test is northeast of the Roberts Brothers' Keck 1, Aux Vases discovery well of the field.

North of Superior Oil Company's Ribeyre Island field of Posey County, Sun Oil Company's E. R. Greathouse 1, SW SE NW 4-5s-14w, White County, flowed by heads from McClosky at 2903-07 feet when plug was drilled. Estimated a 200-barrel well.

Completed for the first Tar Springs producer in the Schuh Bend area of Wabash County, Illinois, was Longhorn Oil Corporation's Mary Heil 5, estimated at 75 barrels a day.

Norris & Gilmore and Newton Pipeline Company's Clinton B. Tharp 1, SW SW SW 26-3n-4w, Center Township, Martin County, about 2 miles southwest of Shoals, was a new wildcat start. Jordan & Son, Oaktown, is the contractor. The test is 5 miles east of the old Loogootee pool.

Indiana's "rankest" wildcat, Stanolind Oil & Gas Company's Ross P. Wells et al 1, NW 15-14n-5w, was coring below 2200 feet with no showing in what is believed to be the St. Peter.

Kentucky

Utica field well yields 200 barrels; week quiet

Owensboro, Ky.—Best completion of a comparatively dull week in western Kentucky was in the Utica field of Daviess County. Stewart & Snyder's No. 4 Hansford, Section 17-N-29, initialed 200 barrels a day from the Barlow and Bethel.

In the Jolly area of northwestern Ohio County, T. A. Galy's A. Tucker 3, Section 19-M-30, was completed at 900 feet for an estimated 8 barrels a day. Production is from the Barlow and Jackson sands.

Ohio Oil Company's George Edwards 1, Section 23-R-31, wildcat near Waitman and 5 miles west of Lewisport, Hancock County, was drilling below 400 feet.

Shearn Coal Company's Pratt 1, Section 2-H-30, in the Belton pool of Muhlenberg County, was drilling below 300 feet. South Penn Development Company's Kirkley 8, in the Island field of McLean County, was deepening from 500 feet.

In the old part of the Utica pool, Wanna Oil Company, Evansville, is drilling at 165 feet in L and N Right-of-way 1, Section 19-N-29.

Forest City Basin

Another failure marks basin activity; 12 tests down

St. Joseph, Mo.—Three tests were drilling in Missouri while 12 were shut down. Another failure was reported in Platte County as Bradford & Son abandoned Renner 1, NW NE SW 5-50n-33w, 2 miles northeast of Wellborn gas pool, at 541 feet.

T. E. Baldwin's Johnson 1-A, NW NE NE 21-65n-15w, Schuyler County, was shut down for 6-inch casing at 1069 feet. Mississippi lime was topped at 303 feet, and based at 727 feet with a show of oil reported at 726-27 feet. Hunton lime was encountered at 915 feet and slight saturation in basal Hunton at 1068½ feet prompted a test. After 12 hours, ¼-bailer of oil was recovered and 200 feet of water was in the hole.

Burgess sand will be tested at Hulse & Christopher's Wiston 1, C S½ NE NW SE 22-49n-32w, Kansas City gas pool, Jackson County. Squirrel sand was shot with 20 quarts at 470-95 feet but the gas show failed to increase.

W. H. Oberithier et al's Campbell 1, C NE 18-61n-12w, east of Kirksville, topped Hunton lime at 575 feet and was drilling deeper with nothing showing. Eight miles south of Maysville, Dekalb County, G. W. Moore et al's McQuate 1, NE SW SW 11-57n-31w, had Hunton lime at 1383 feet and was shut down for casing at 1500 feet.

Pawnee Royalty Company's Meyers 1, C NW NW 24-1n-15e, Richardson County, Nebraska, set 8-inch casing at 2560 feet in basal Hunton and was drilling below 3095 feet. Forest City Basin Syndicate moved a rig on location at Windle 1, SE NE SE 3-1n-15e.

Oklahoma

Good Wilcox producer completed in St. Louis field

Tulsa.—Hilton Phillips, Inc., deepened a former Hunton lime producer in the St. Louis field, Pottawatomie County, to bring in a 2472-barrel producer from Wilcox sand. Pay was topped at 4312 feet and drilled in 6 feet at Bettis 1-A, SEc SW 21-7n-4e. Same operators were drilling below 4100 feet at Bettis 4-A, SE SW SW 21-7n-4e. This area continues to be one of the most active in Oklahoma with 15 wells drilling, 6 new locations staked and 3 tests inactive.

E. W. Young et al's Allen 1, S½ SW NE 1-15n-9e, ½ mile southeast of Bristow pool, Creek County, pumped 22 barrels daily to extend that area. Dutcher sand was shot with 120 quarts at 2802-65 feet, although the test was initially drilled through Wilcox sand to 3360 feet. South of this producer an outpost was dry. A. S. Kaplan abandoned Long 1, NWc SE 12-15n-9e, in Wilcox sand at 3406 feet. South of Sapulpa field, Creek County, Midco Oil Corporation's Bruner 1, CNL NW SW 29-17n-11e, had a show of oil in Bartlesville sand at 1927-32 feet but were drilling ahead at 2050 feet.

Another gusher was washed in at Ramsey pool, Payne County, as Mid-Continent Petroleum Corporation et al's Ramsey 13, C N½ S½ NW 18-18n-2e, established a 24-hour potential of 5792 barrels. During the first hour, 257 barrels of crude were gauged while the second hour it flowed 225 barrels with 3,800,000 cubic feet of gas. First Wilcox sand was logged at 4742-55 feet. North of Ramsey, Gardner Petroleum Corporation et al's Ahrberg 1, NE SW SE 2-18n-1e, was making hole below 3600 feet.

South Britton pool, Oklahoma County, was extended to the southeast as Olson Oil Company et al's Scritchfield 1, NW NE SE 4-12n-3w, was averaging 8 barrels hourly by natural flow with 500,000 cubic feet of gas. Wilcox sand is the pay horizon at 6728-65 feet. Scritchfield 1 lies southeast of the discovery test, Vancek 1, previously the sole producer for the pool, while a west offset to the discovery was abandoned in dry sand.

Helmerich and Payne perforated Deese sand with 155 shots at Hefner 2, NEc SW 12-1n-5w, Doyle pool, Stephens County, and were testing with a hole full of oil. A large producer is indicated and considerable gas is showing.

Weleetka sector was seeing renewed activity in Southern Okfuskee County. Doak and Hughes' Douglass 1, NW SE NE 16-10n-11e, swabbed 120 barrels in less than 12 hours from a sandy zone of the Wapanucka. Saturation at 2823-2826 feet also showed some water and operators were drilling ahead. Commercial Drilling Company were nearing the pay at Hen 1-A, SW SE NW 16-10n-11e. Summit Drilling Company is starting 2 tests in the area—Simmer 1, SW SE NW, and Steil 3, NW NE SW in 18-10n-11e. Northwest of Beidleman pool, Welch is moving in tools at Walker 1, NW SW SW 6-13n-10e. Champlin Refining Company's Thompson 2, NE SW NW 7-13n-8e, 2 miles west of Micawber pool, Okfuskee County, was drilling below 2850 feet.

Sinclair Prairie Oil Company's German 1, SE NW NW 1-6n-13w, 6 miles southeast of Carnegie, Caddo County, was making about 10 feet of hole daily in hard Wilcox sand around 9255 feet. This wildcat is Oklahoma's deepest drilling test. In Dewey County, western Oklahoma, Magnolia Petroleum Company's Fiekes 1, C SW SW 31-18n-14w, 3½ miles northwest of Oakwood, cemented 9-inch casing at 6480 feet. An electric log showed nothing at that depth and drilling was resumed. Location is on a 9600-acre block assembled by W. E. Guion and C. R. Hutton, of Oakwood. Two more blocks have been assembled, indicating this area may witness renewed activity during the spring if the outcome of the Fiekes wildcat is favorable.

Portable Drilling Company is reviving the old Hallet field, Pawnee County. Turner 1, SE NW SW 3-20n-7e, was completed for an estimated production of 50 barrels daily. Cleveland sand was topped at 2140 feet and drilled to 2154 feet. Other locations are being planned within the area.

Patsy Oil Company's Richardson 1, SE SW SE 9-5n-3e, Byars pool, McClain County, topped Viola lime at 3592 feet and was drilling at 3655 feet. Crude from the 3-well pool is being trucked to Stanolind Pipe Line Company's line at Beebe. Five wells were drilling in the Beebe area, Pontotoc County. West of Beebe, Roy Starr Oil & Gas Company was drilling below 1200 feet at Bowley 1, SWc NW 29-5n-4e.

Pure Oil Company's Little 1, C W½ NE SE 28-5s-7e, 9 miles east of Madill pool, Marshall County, found Hunton lime top at 3352 feet and the bit was rotating below 3475 feet.

Oklahoma completes 45 tests; has 36 starts

During the past week Oklahoma completed 45 wells, of which 22 were oil with total initial production of 11,089 barrels daily. Three gas wells gauged a total of 14,700,000 cubic feet initially, and 20 tests resulted in dry holes. Thirty-six new locations were staked. Leading were Okfuskee, Osage and Pawnee counties with 4 each; followed by Jackson, Creek and Lincoln with 3 each; Caddo, Stephens, Okmulgee and Logan with 2 each; and Atoka, Carter, Grady, Kiowa, Hughes, Pontotoc and Seminole counties with 1 each.

Kansas

Four pool extensions highlight Kansas activity

Wichita.—Pool extensions continued to highlight Kansas field activity during the past week. Four pools were enlarged. Lario Oil and Gas Company's Wisener 1, C NL SW SW 11-12-18w, was completed for 1695 barrels daily to extend Walters pool, Ellis County, ¼ mile west. Arbuckle lime was treated with acid at 3682 feet.

Kayes, Potter & Cramm completed Vonfeldt 1, NWc 6-15-15w, for a potential of 619 barrels. It extends the South Big Creek pool, Russell County, ¾ mile southeast. Pay is Lansing-Kansas City lime at 3075 feet. Cities Service Oil Company staked location for Sutton 1, SEc 7-13-14w, ¾ mile northeast of Atherton pool.

Oil was flowing over the casing head at Carlock & Dutton et al's Renollett 1-B, NWc SE 36-20-8w, ½ mile west of Wherry pool, Rice County. Conglomerate was penetrated at 3318-21 feet. Preparations were being made for a potential test.

Trapp pool, Barton County, was extended ½ mile southeast by Kaiser, Branine et al's Luerman 1, NEc SE 14-16-12w, which had approximately 600 feet of oil in the hole. Casing was cemented on top of the Arbuckle lime at 3359 feet. Hole was carried 4 feet into the pay.

Discovery Deepened

Springrose Drilling Company and Central Petroleum Company's Swanson 1, C N½ NW NW 18-20-5w, North Bornholdt pool discovery, McPherson County, was deepened to 3348 feet in Chat formation. In 24 hours it flowed 1383 barrels to establish the maximum state potential of 3000 barrels daily by draw-down. Gravity of the crude increased from 37 to 39 degrees. Same operators have staked Swanson 2, C S½ NW NW 18-20-5w. Mid-Continent Petroleum Corporation's Peterson 1, CWL SW SW 29-20-5w, Bornholdt pool, also rated a state potential of 3000 barrels per day. Mississippi Chat at 3363 feet is the pay horizon.

Northwest of Hoisington pool and south of Odin pool, Phillips Petroleum Company and Howard Brunson's Wondra 1, CWL SW NE 15-17-12w, Barton County, failed to produce commercially and was abandoned after considerable testing. Arbuckle lime showed oil and water at 3316-20 feet, but it made only 6 bailers of oil and 3 of water in four hours. Lansing lime also showed oil.

Phillips Petroleum Company's Petz 1, C S½ SE NE 7-20-11w, between Ellinwood and Ellinwood West pools, Barton County, swabbed 20 barrels hourly. Arbuckle lime was drilled to 3325 feet. Pulse and Schneider's Knopp 1, C N½ NE SE 6-20-11w, acidized Arbuckle lime with 2000 gallons at

3351 feet. Previously, the hole filled 1200 feet with oil in 2½ hours.

Shell Oil Company was rigging up at Frazee 1, NE SE NE 33-25-8w, 4 miles northeast of Lerado pool, Reno County. Champlin Refining Company staked location for Smith 1, CEL SE NE 17-21-11w, ½ mile northwest of Snider South pool, Stafford County. G. A. Fuller has derrick up at Stilt 1, CSL SE NE 21-27-1w, 5 miles west of Wichita and 8 miles southwest of Valley Center pool, Sedgwick County. W. J. Coppinger et al's Whelan 1, C SW NW 29-31-11w, ½ mile northeast Whelan pool, Barber County has completed pits and was moving in materials.

Atlantic Refining Company et al's Smith 1, C SE NW 33-33-4e, between Rainbow Bend and Rahn pools, Cowley County, had cable tools on location and preparing to start operations. Sheedy et al's Hook 1, NWc 4-22-10e, north of Pixlee pool, Greenwood County, was shut down at 760 feet. C. W. Thrall staked McComb 1, CSL SW NE 22-24-11w, ¾ mile west of the prolific Zenith pool, Stafford County.

Westgate-Greenland Oil Company abandoned Chindberg 1, C N½ NE SE 18-18-1w, 4 miles northwest of the Canton pool, McPherson County, at 2808 feet. From Mississippi lime at 2763-2808, the wildcat pumped 33 barrels of oil and 100 barrels of water in 12 hours. However, the water increased to ruin the well.

Kansas new starts exceed completions

Fourteen oil wells were completed in Kansas during the past week, making a total potential of 17,207 barrels daily. Two gas wells had a combined open-flow of 17,300,000 cubic feet, and 2 tests were dry. Field activity held up with 29 stakes driven. Ellsworth and Russell counties reported 4 each; Cowley, Rice and Stafford had 3 each; Butler and Johnson 2 each, and Barber, Barton, Ellis, Marion, McPherson, Reno, Sedgwick and Sumner counties had 1 each.

To repressure 150 acres in Nowata County

H. R. Coldren has been granted authority by the Oklahoma Corporation Commission to repressure by water drive approximately 150 acres in Section 14-26n-16e, Nowata County.

Complete first casing head plant in Southwest Michigan

Pent Hex Corporation's new casing head gasoline plant was placed in operation last week, the first plant of its kind in Southwest Michigan. The plant, located on the west side of the Tallmadge-Walker oil field, has a capacity of 6,500,000 feet of gas daily. Gasoline will be stripped by a 6-compressor unit. Absorption units may be added later.

Residue dry gas will be purchased by the West Michigan Consumers Company, an affiliate organization which sells gas for industrial purposes in Muskegon. The company constructed 20 miles of 8-inch pipe line from its Ravenna field station to the gasoline plant.

Williams Brothers Corporation, of Tulsa, was the construction contractor on both the pipe line and the gasoline plant.

North Texas

Wider well spacing brings increase in new drilling

Wichita Falls, Texas.—Field operations scheduled for the North Texas district totalled more than 100 the past week, according to preliminary compilation. This large gain in volume is primarily due to the adoption of a wider well spacing rule by the commission effective February 1, while an upturn was already in store for the district, which accounted for a record number of oil discoveries and new horizons the past year.

Development of a deep pool 4 miles west of Wichita Falls was in prospect after Bert Ligon et al's C. F. Collins 2, J. T. Taylor Survey, cored first saturation in broken lime at 4217-21 feet, being slightly higher than a previous test on the same tract. Coring was resumed with more pay due near the 4300-foot level.

The Strawn belt in Jack County registered an oil strike through the wildcat efforts of Paul Steed and Joe Cooper on the W. J. Mathis tract, SW BS&F Survey, A-1562, with oil showing after logging broken pay at 2870-83 feet. This test is 4 miles southwest of Jacksboro and about same distance east of Strawn production in the Bryson district. Pipe has been ordered to try for a completion.

Preliminary proration quotas assigned the deep lime areas for February gives the 16 wells in Consolidated pool, southeastern Wilbarger County, a daily allowable of 100 barrels each. Regular Strawn completions at K-M-A were assigned an allowable of 37 barrels daily, while the well allowable at Hull-Silk field, Archer County, was lowered to 27 barrels daily. Heretofore the latter two areas have been allotted equal well quotas.

L. T. Burns et al's White 1, NWc Lot 9, Section 34, short southeast outpost for the mid section of the Hull-Silk field, flowed by heads after 80-quart nitro shot in Lower Strawn at 4404-24 feet.

Archer County has been assigned another deep wildcat that will be drilled by C. W. Clark et al on the J. M. McCarty tract, NWc of Chas. C. Brown Survey No. 21. Contract calls for a 5200-foot depth or water in the Ellenberger.

Shell Oil Company's Henderson 1, southwestern Clay County wildcat that has been in process of completion for a month, tested water when plugged back to immediately below the 4½-inch casing seat at 3494 feet. Pipe is due to be perforated to recement on the theory that the casing seat has given way.

Third oil completion for the Halsell pool, western Clay County Lower Strawn area, is indicated by Bridwell Oil Company's Halsell 2-A, northwest offset to its discovery. Seven-inch pipe has been cemented on top of broken sandy lime showing oil saturation at 4780-98 feet.

More prospecting is in store for a wildcat block being explored in eastern Baylor County by W. P. Staton and Howard Bunch's Robertson School Lands 1, situated on a 2593-acre tract, regardless of the outcome of the test, which was drilling at 3185 feet on a 3500-foot contract. Nominal oil saturation was logged at 2996-3025 feet; 3037-3050 feet; and in lime at 3135-80 feet. Hall-Jordan Oil Company's Blackman 1, projected 4000-foot wildcat for northeast portion of county, was drilling at 3650 feet.

Southeast expansion for the Walnut Bend field, Cooke County, occurred when Sun Oil Company's Fred Snuggs 1, NWc Section 58, Fannin County School Lands, flowed 78 barels natural in 4 hours for completion at 4917 feet. Production is from regular Strawn at 4901-14 feet and also the upper zone, which was tapped by perforating 5½-inch pipe with 75 shots at 4822-37 feet. Sinclair Prairie Oil Company's McGeorge 6, a west offset, followed the same completion procedure in tapping both pays for an initial flow of 80.76 barrels of oil in 2 hours through 2-inch tubing choke. The February proration schedule reduced the allowable of all wells in this area from 100 to 35 barrels daily.

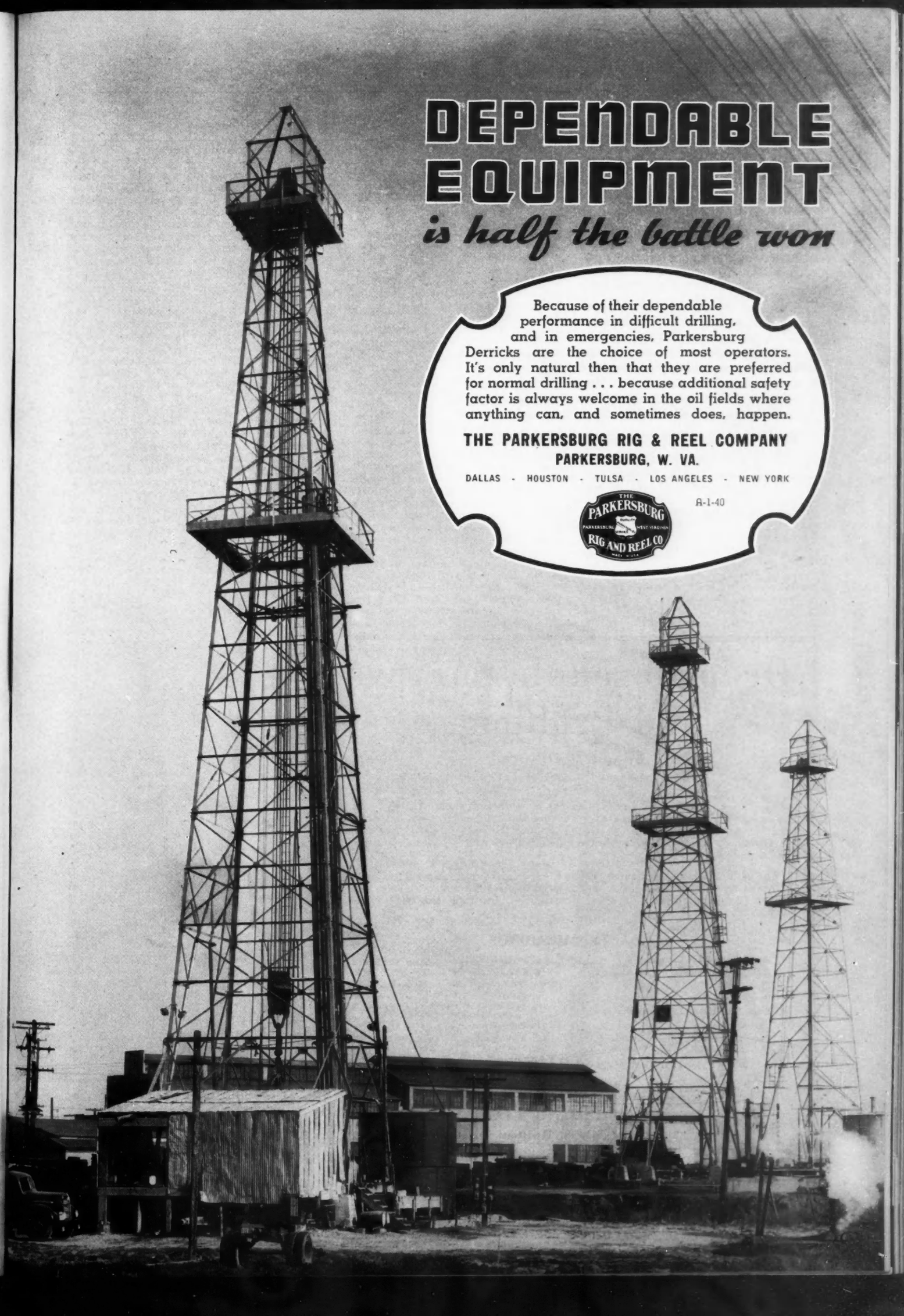
Two failures were recorded for the east portion of the Bonita pool, Montague County. The Texas Company's Martin 1, C. A. Barnes Survey, ⅞ mile east by north of production, quit in solid granite at 3603-24 feet. United Producers Company and Continental Oil Company's Custer 1-A, J. McKnight Survey, was slated to be plugged after logging inadequate saturation to make a producer above granite at 3805-09 feet. Sinclair Prairie Oil Company's Howard 1, wildcat on the west edge of the Bonita townsite, was drilling shale at 4480 feet. Walter Gant and Continental Oil Company's Brown 1, western Montague County wildcat, was due to run liner late last week to try for production in the Ellenberger at 7288-7333½ feet. If this zone is dry the hole will be plugged back by stages and pipe perforated opposite oil saturation passed up in the Bend and Strawn series.

Texas permits increase sharply; 343 granted

Permits for drilling 343 new wells in Texas were approved by the Texas Railroad Commission last week, 142 more than were allowed the week before.

Five permits were approved in the East Texas field, including four in Gregg and one in Rusk County. There were 8 locations reported from the remaining part of the East Central Texas area.

The commission approved permits for 88 more wells in West Texas, including 27 in Ector, 18 in Yoakum and 12 in Ward County. West Central Texas operators listed 27 locations. There were 62 permits granted in Southwest Texas with 13 in Duval and 11 in Zapata County, while producers


DEPENDABLE
EQUIPMENT
is half the battle won
Because of their dependable performance in difficult drilling, and in emergencies, Parkersburg Derricks are the choice of most operators. It's only natural then that they are preferred for normal drilling . . . because additional safety factor is always welcome in the oil fields where anything can, and sometimes does, happen.
THE PARKERSBURG RIG & REEL COMPANY
PARKERSBURG, W. VA.
DALLAS - HOUSTON - TULSA - LOS ANGELES - NEW YORK
A-1-40
THE PARKERSBURG RIG AND REEL CO

in the Gulf Coast district reported 38 locations.

From the North Texas District 88 permits were listed, including 20 in Wichita, 19 in Cooke, 18 in Archer and 12 in Clay County. Panhandle operators were allowed to drill 27 more wells with 13 in Gray County.

Picket Ridge gas operators protest order

At a hearing before the Texas Railroad Commission last week, operators of gas wells in Pickett Ridge field, Wharton County, protested low allowables assigned to them. Under orders which became effective January 30, gas wells were reduced on a volumetric basis to an allowable equivalent to that produced by oil wells in the same field. This meant production of 120,000 to 150,000 feet of gas daily.

The operators complained that their wells would not pay out on such small volumes of gas. They pointed out that the law provides that a maximum of 25 percent of the potential may be produced from such wells, if it does not produce waste, and that under the recent order they are permitted to produce only about 1 percent. Production of far more gas would not cause waste, it was argued.

The Texas Company has sought to restrain gas production from the field in order that this gas may be available for lifting oil.

West Texas

North Cowden Holt area extended 2¼ miles northwest

Midland.—The Holt 5100-foot oil level uncovered last year on the northwest flank of the North Cowden field, Ector County, is assured of a 2¼-mile northwest extension by the fourth test drilled to this deep pay for the central basin area. Adequate oil saturation to make a producer was logged by Stanolind Oil & Gas Company's W. F. Cowden 1, C SE SW T&P Section 4, Block 43, T-1-N, in coring broken lime section at 5164-5200 feet, with an elevation of 3115 feet. An electrical log reading was made late last week preparatory to the landing of a string of 5½-inch casing for a production test. Top of brown lime was called at 3590 feet, and first solid lime at 3835 feet.

The outlook is favorable for the Holt pay to embrace a large area, as the 4 tests are almost level structurally, although distributed along a northwest to southeast trend for an interval of 5 miles. All are situated immediately west of regular Permian production, giving rise to the possibility that a greater pay section and more prolific production will prevail when exploration shifts to the main body of the North Cowden structure. Comparison of logs reveals that the section between the regular and lower pay is surprisingly uniform. A shale body situated about 200 feet above the Holt saturation, which is termed Lower Middle Permian, serves as an accurate geological marker. The Holt is the second lowest known oil zone in the Permian, being intermediate to the McKnight and Tubbs, or Sand Hill horizons found by Gulf Oil Corporation in Crane County.

North Cowden field operators are not inclined to push Holt zone explorations until the development of the regular horizon is completed and assurance given that proration allowable will warrant. Old wells that used 7-inch pipe for the oil string can be deepened later at comparatively little expense, and install 1000 feet of liner to protect the open hole. Two-mile northeast outpost for the Cowden field has been contracted by Black & Steele in acquiring mineral rights to the 6000-foot level under W½ PSL Section A, Andrews County, from Continental Oil Company, which retains 1/32 over-riding royalty. The lease requires the spudding of a test by February 5.

Deepening of Landreth Production Corporation and Shell Oil Company's Johnson 1-A, SE SE NW T&P Section 43, Block 43, T-1-S, Ector County wildcat on a strike between the Foster-Johnson and Goldsmith fields, to 5300 feet to explore the Holt zone was underway last week. It failed to make a commercial pumper in drilling through the regular Permian oil level to sulphur water at 4496-4502 feet. Stanolind Oil & Gas Company, a nearby lease owner, contributed $4000 towards the cost of the new depth contract.

Foster Deep Failure

The Foster field registered its first deep failure when York & Harper and The Sloan & Zook Company's Foster 1-D, SW NW NE T&P Section 8, Block 42, T-2-S, encountered sulphur water in drilling through the Holt zone to the 5500-foot level. This test failed to indicate commercial production in the Upper Permian, although within the proved area. No encouragement for production was found at the lower level.

Other projected Holt-pay test on wildcat blocks, includes M. A. Grisham et al's Cowden 1, C NE NE T&P Section 4, Block 45, T-1-N, northwestern Ector County, which was drilling below surface pipe, and Richmond Drilling Company and Tom Hunter's University-Atlantic 1, C NE NE Section 21, Block 11, Andrews County. The latter was drilling at 1500 feet.

Authorization of 9 additional tests by Gulf Oil Corporation for the Goldsmith field the past week will provide work for the rotary contractors engaged in completing 6 wells and drilling 3 tests on its 19,840-acre Goldsmith lease.

Magnolia Petroleum Company's Sealy 2-43, which has been attempting a completion on a new reef type structure in Ward County since last October, flowed 19 barrels of oil and 1,805,000 feet of gas in 24 hours through 1-inch choke after perforating casing at 2945-

Deep Borehole Surveys and Problems

by M. H. HADDOCK

Principal, The Mining and Technical Institute, Leicester, England

This book gathers into one convenient volume and explains all of the important and accepted means of surveying the courses of deep boreholes and orientating their cores. It traces the evolution of modern borehole-surveying devices, and adds various problems relevant to strata, location and orientation.

The author has supplemented his own experiences and observations with information from workers in America, Germany, Russia and elsewhere, and makes frequent reference to these sources in illustrating the use of the various methods of equipment.

CHAPTER HEADINGS

1. Deviation and Its Causes
2. Auxiliary Registrations in Borehole Surveys.
3. Instrumental Survey of Boreholes.
4. Fluid Methods of Surveying Boreholes
5. Core Orientation
6. Compass and Plumb-Bob Methods
7. Pendulum Methods
8. Photographic Methods
9. Gyroscopic Compass Methods of Surveying Boreholes
10. Geophysical Methods of Investigating Boreholes
11. Problems
12. Bibliography

296 PAGES, 6 x 9, 186 ILLUSTRATIONS, $4.00

SEND CHECK TO

GULF PUBLISHING COMPANY

3301 Buffalo Drive, Houston, Texas

50 feet with 10 shots and using 500 gallons of acid. The hole was plugged back from water at 3018 feet.

Yoakum County Tests Plug Back

Three wildcats were slated for plugging the past week. In northeastern Yoakum County, Atlantic Refining Company-The Sloan & Zook Company's Fitzgerald 1, originally temporarily abandoned at 5150 feet, halted at 5650 feet, as no shows were recorded in the Lower Permian. In Gaines County, Oil Well Drilling Company's Sikes-Humble 1, C SE SE PSL Section 10, Block A, encountered sulphur water in drilling to 5005 feet. Sinclair Prairie Oil Company's E. E. Erwin 1, NWc H&TC Section 1, Block 25, northwestern Mitchell County, shutdown at 3065 feet, having logged first salt water at 3007 feet and sulphur water at 3026 feet, with an elevation of 2302 feet.

Continental Oil Company et al's J. S. Todd 1, third Ordovician test for the Todd structure, Crockett County, was ordered abandoned after plugging back from Ellenberger at 6256-7010 feet by stages to 6620 feet, resulting in only a small show of oil and gas. The most promising show, near the Simpson-Ellenberger contact was shot with 1235 quarts of nitro, then treated with 7000 gallons of acid. Todd 2, a new Ordovician project, developed crooked hole at 472 feet, then skidded 30 feet east. A shallow failure for the area the past week was Continental Oil Company's Todd 1-32 which quit in sulphur water at 1510 feet. Stanolind Oil & Gas Company et al's Todd 5-67, is awaiting acid treatment in saturated zone at 1369-85 feet.

Geo. P. Livermore's Glimp 1, NE NE SE PSL Section 8, Block X, 1⅝ miles southwest of nearest production in the Slaughter field, Hockley County, earned an initial rating of 891 barrels of 31.2-gravity oil after using 9000 gallons of acid in broken pay at 4980-5030 feet. George Etz et al, who recently launched operations in the area, has contracted to drill 2 tests in acquiring lease on all of Labor 6, League 42, Kaufman County School Lands.

Pressure maintenance plant planned in Ward County area

Midland, Texas.—Installation of a pressure maintenance plant to operate in the Ward County portion of the Payton oil pool has been started by W. P. Luse and Charles Ice on their Blair 11-well lease, H&TC Section 5, Block 32. The plant will be equipped with 2 200-horsepower gas engines and compressors, with a rated capacity of 2,000,000 cubic feet of gas daily. Operating pressure will range from 750 to 800 pounds. The area produces 33-gravity oil from sandy-lime at 2000 feet.

Gulf Oil Corporation has petitioned the Texas Railroad Commission for permit to install a pressure maintenance plant in North Worth County to serve its G. W. O'Brien and Hutchings properties.

East Texas

Smith County test to try 2 shows through perforations

Tyler. — Two porous zones in the Lower Trinity that were passed up by Shell Oil Company's Campbell 1, Chapel Hill pool, Smith County, in drilling to 8600 feet will be tested by perforating pipe. String of 5½-inch pipe was cemented at 8160 feet. Electrical log reveals favorable porosity in the Upper Pettitt at 8037-63 feet, and in the Lower Glenrose at 7760-92 feet. Should these horizons fail to produce the northeast outpost for the area will be plugged back to complete in gas-distillate pay in the Paluxy at 5749-5821 feet.

Sun Oil Company's Huddle 1, 2 miles south of the Chapel Hill gas-distillate producer, logged first anhydrite stringer at 6485-90 feet and was drilling at 6650 feet.

In Camp County, Moss & McGlothlin's Venters 1, first Lower Trinity project for the county, was ordered plugged, having recorded no shows in drilling to the Lower Glenrose at 7602 feet.

Progress on Shell Oil Company's Dorsey 1, Percilla area, Houston County, was restricted in coring to 9962 feet due to a small piece of junk left in the hole following fishing job at 9884 feet.

UNIBOLT flexible BALL JOINT
ADDS LIFE AND FLEXIBILITY TO ROTARY HOSE
— The UNIBOLT Flexible Ball Joint is now available with hubs threaded male by female in 3" and 4" sizes for rotary hose connections as illustrated herewith. This Joint swings 45 degrees, thus relieving the rotary hose of strain which results from rigid connections.
For boiler and pump manifolds, high pressure steam lines and all lines subject to expansion or vibration, the standard UNIBOLT Ball Joint with two female threaded connections is preferred. It simplifies misaligned connections, prevents damage caused by intermittent vibration and is ideal for flexible manifolds.
The UNIBOLT Ball Joint has no threads between its component parts to gall or freeze; therefore, it is easily repacked. A single bolt tightens the joint.
THORNHILL-CRAVER CO., INC.
Houston
UNIBOLT
Texas, U. S. A.

Southwest Texas

Refugio County showings indicate important discovery

Corpus Christi. — Refugio County again was placed in line for an intensive drilling program as a new discovery appears to have opened a pool of major proportions. Finding the Quintana or Tomoconnor sand in the Frio zone, Norsworthy Production Company's Fox 1, four miles southwest of the McFaddin field, was late in the week ready to be gauged.

The test drilled to 6715 feet, following which electric log and side-wall samples indicated an oil sand at 5893-5907 feet. Pipe was landed at 5950 feet and the perforations made 5895-98 feet with 14 shots. The well was tested through ¼-inch top and ⅜-inch chokes on 2-inch tubing with packer set at 5883 feet. In 5½ minutes, the 500-foot fresh water cushion flowed and at the end of the 20-minute test, the well was flowing 40.6-gravity pipe-line oil under 1125 pounds working pressure. Bottom-hole pressure was registered at 2800 pounds. The test tool was being pulled from the hole as the first joint was broken down, tubing began to unload. The recovery was 1605 feet of oil and 60 feet of mud. Late in the week, the well was flowing, but no definite gauge was available. Trinity Drillers, Inc., of San Antonio, has the contract on the operation.

One of the deepest producers ever drilled in South Texas opened a new field of Aransas County January 27 when Continental Oil Company's St. Charles Company 1, 8½ miles northeast of Lamar blew out from 9335 feet. It ran wild, catching afire January 30. It was flowing a large volume of gas, dark distillate and some water. The test had drilled hard sand at 9327-30 feet and was coming out of the hole with a core which cut like sand from 9330-35 feet when the blowout occurred. The rig was wrecked. M. M. Kinley was attempting to control the test and kill the fire.

The well, Section 196, Blassman Survey, is on a 46,830-acre tract. It has an elevation of 22 feet, derrick floor. The Marginulina was topped at 7165 feet, placing the producing sand deep into the Frio. A string of 9⅝-inch casing was set at 8110 feet, and likely will prevent a crater.

An effort will be made to open a new pool on the Deternal prospect in Victoria County, 7½ miles southeast of Victoria. The well was carried to 6485 feet, attempted to blowout and was killed. An electric log, followed by sidewall samples, indicated a good sand section with gas and distillate show between 6430 and the bottom of the hole. Other sands with oil- and gas-producing possibilities were found at 5685-5705 feet, 5785-95 feet and 5863-70 feet. These will be stage tested through perforations.

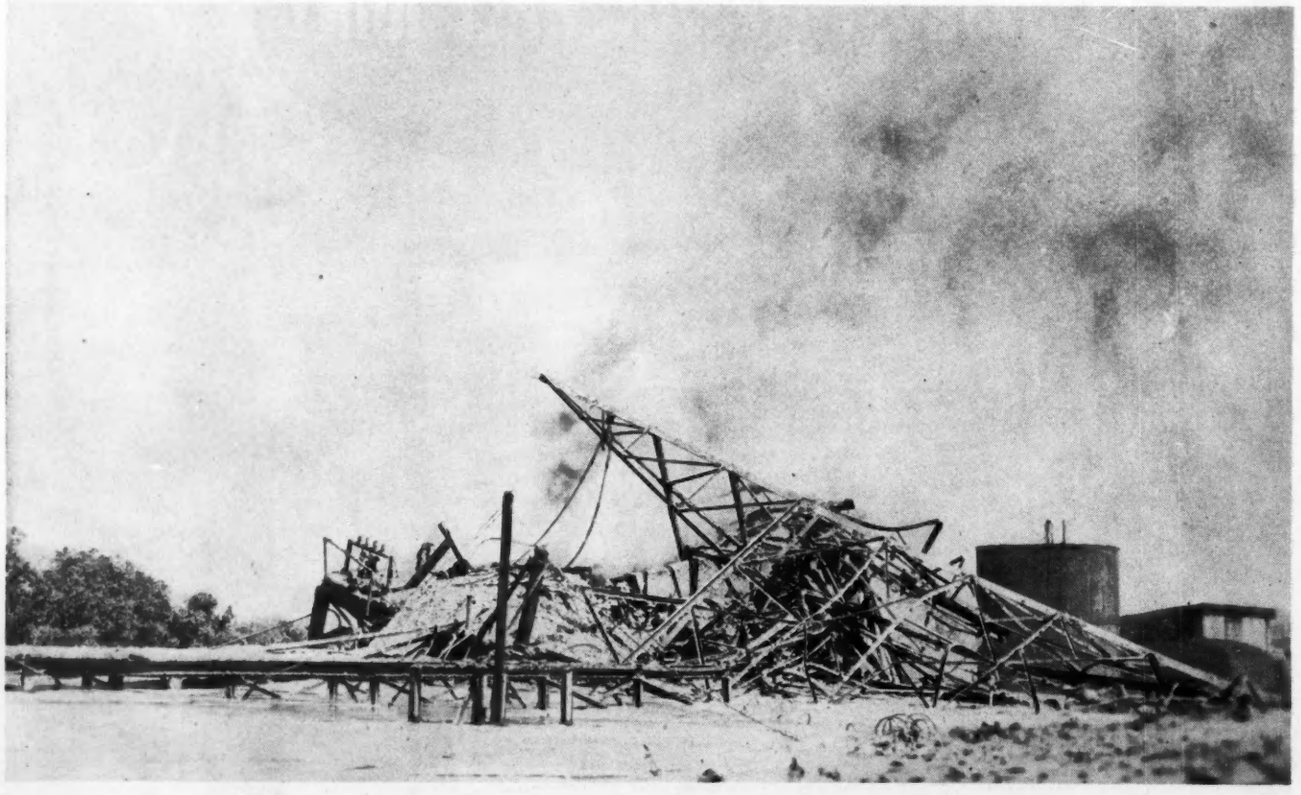
Continental Oil Company's St. Charles Company 1, Aransas County, blew out and did this to the derrick when it cored into one of the deepest producing formations so far found in South Texas. Flow, not yet controlled, is gas, distillate and some water from 9335 feet. Casing is set to 8110 feet, which may prevent a crater.

The above well is on a farmout to Renwar Oil Corporation and John G. Mayo and is being drilled with the former's tools. The well is in the Diego Garcia Survey, Abstract 39, and is on the G. F. Bayer et al land.

John G. Mayo and Thompson Drilling Company's S. E. Ragsdale 1, Valentin Garcia Survey, 3 miles southeast of the East Telferner field, is attracting attention. It is on the Humble Oil & Refining Company's geophysical prospect and is on a farmout from that company. The test showed oil and salt water in the Greta zone topped at 4513 feet. It was at last reports coring a sand and shale section in the Frio zone at 5185-5225 feet, in which odors of oil and gas were found.

Victoria field, new shallow area just south of the Victoria townsite, has received several bad set backs. R. R. Stolley's Louisa Vogt 1, 1100 feet south of the discovery, was abandoned just below 2700 feet. George E. Smith et al's Stubbs 1, Manchola Survey, 2 miles southwest of the field, found a sand and shaly-sand section at 4712-75 feet, finding oily mud in the upper portion and salt water in the lower. It is drilling. J. W. Sewell et al's J. Fox 1, 3400 feet west of the discovery, was a salt water well in sand at 4472-80 feet and was going ahead to the 4700-foot sand.

The Texas Company's J. F. Weed 2, deepest hole in the Francitas field of Jackson County, failed to find encouragement to about 10,000 feet and has been abandoned. In the same county, but a northwest outpost to the Vanderbilt-West field, an abandonment cut short chance for further extensions. The well was Superior Oil Corpora-



tion's Simon and Seidel, which was stopped at 6321 feet.

Marine drilling in the East White Point field has been expanded. Sinclair Prairie Oil Company now has 5 producers in the submerged area of Nueces Bay and is drilling 2 more tests. W. R. R. Oil Company is ready to start one. A new outpost, ½ mile southeast of the field, may bring additional wells in the water.

Guadalupe County fault well expected to rate 100 barrels

San Antonio.—Balcones Fault zone's newest pool was opened by A. J. "Red" Holifield in a wildcat between the Salt Flats and Manford fields and in Guadalupe County. D. M. Day 1, was acidized and headed at the rate of 20 barrels the first hour, making 37-gravity oil. The short flow, however, is not indicative of its potential output, which likely will be around 100 barrels per day. Storage and pumping equipment were being erected for final completion. Likewise, Holifield is reported to have made a location and two others were scheduled for nearby sites.

The well was drilled by Pegg Brothers of San Antonio. It topped the Austin chalk at 2381 feet, but drilled to 2830 feet, 18 feet into the Edwards limestone. Showing sulphur water, it was plugged back to 2685 feet, base of the Del Rio clay. Casing was landed at 2337 feet, giving the well open hole in the base of the Taylor marl, all of the Austin chalk and Buda limestone.

The well is on the major faulting extensions southwest from the Salt Flats field. Several wells were drilled on the James Hinds Survey, same as the one in which the discovery was drilled, but they failed to produce. They did, however, indicate the expanse of the faulting.

In Atascosa County, Red Bank Oil Company and Casray Oil Company's work on Pratt 1 apparently has been of little success. The well, in Garza Survey and on the Anchorage prospect, was acidized with 700 gallons at 2386 feet to clear the heavy mud from the face of the formation. It made a small amount of 47-gravity oil and likely will be deepened to serpentine. The well was testing the Navarro-Taylor series, finding a broken sand section at 2343-86 feet.

Sweden and North Sweden fields apparently connected

Laredo, Texas.—Potential test was being run in the well which apparently is the connecting link between North Sweden and Sweden fields of Duval County. Drilled by Hiawatha Oil & Gas Company, George Herberger 1-A, NE Section 14, flowed 60 barrels of 52-gravity oil per day through 5/32-inch choke under 1820 pounds tubing and 1900 pounds casing pressure, from perforations at 5864-72 feet.

The same company's L. G. Denman 6, south end of the Longhorn field, was opening a third sand for the field as it was ready for recompletion at 3842-60 feet. The well was drilled to 5992 feet and plugged back. First tests in the sand netted salt water. When a second attempt was made to drill out for perforations, a fishing job occurred. This having been cleaned up, the new tests are scheduled immediately.

Stake 14 locations for drilling in Kelsey area

McAllen.—Humble Oil & Refining Company is making wide steps to expand its already large producing area in the Kesley field centering around the common corner of Brooks, Jim Hogg and Starr counties. Having completed 45 wells on the McGill Brothers Ranch, the company has staked locations for 14 more tests, they being spotted to further determine the limits of the pool. The company also plans further work on the Kelsey ranch.

Farther southwest and between this field and Sun pool, two tests are being sunk in an effort to connect the producing areas. Royal Oil & Gas Company's E. Juarez 1, 6200 feet west and south of Kelsey production, is at 3435 feet, while Sun Oil Company's E. Rodriguez 1, 8 miles southwest of Kelsey pool, is coring below 5236 feet. It has had several oil and gas showings.

Colorado County Wilcox tests get salt water shows

San Antonio.—Salt water has resulted in the several tests of the Wilcox formation in the deep exploration of Davis & Company in the Garwood field of Colorado County. J. R. McLane 1-A, on second set of perforations at 9958-84 feet, swabbed water after lowering the fluid to 5000 feet. These were

Another Case WHERE CASE COSTS LESS

Here is one of eight Case-powered wells worked by McCallum & Forber, Tyler, Texas. Driving a 50 H.P. Ideco unit, this Case LE Oilfield Engine is pumping from 3600 feet. Installed in February 1935, it was running on its original cylinder sleeves and its first replacement of rings when photographed in its fifth year.

Long life of working parts means more than low repair bills. It means sustained economy of fuel and oil, greater freedom from shut-downs. Besides their built-in durability, Case oilfield engines can be furnished with safety controls which stop them instantly should temperature get too high or oil pressure too low.

Ask any of these distributors about the economy that others enjoy . . . the savings that you may make . . . with these compact, convenient, self-contained power plants engineered especially for oilfield work.

DISTRIBUTORS

Southwest Equipment Co.
705 Ross Ave.
Dallas, Texas

Stocks at Tulsa, Oklahoma City, Houston, Kilgore and Dallas

Howard Supply Co.
5125 Santa Fe Ave.
Los Angeles, Calif.

CASE OIL FIELD ENGINES

squeezed and new holes made at 9843-60 feet and 9752-66 feet.

Atlantic Refining Company's Conwell, 1½ miles west of Thomaston in DeWitt County, is below 6500 feet on its 8200-foot Wilcox project.

Although it failed to test the Wilcox formation due to stuck drill pipe at 8959 feet, Tide Water Associated Oil Company's A. M. Bruni 7, on the Bruni structure in Webb County, opened a new deep sand for that portion of the Mirando district. A 10-quart shot was placed in the hole at 5620-30 feet, following which the test flowed 1 barrel of 46-gravity distillate per hour through 3/32-inch choke under 450 pounds working pressure.

Ask 20-acre spacing for South Thompson area

Operators in the South Thompson field, Fort Bend County, requested standard 20-acre spacing at a hearing before the Texas Railroad Commission last week. Gulf Oil Corporation presented a plan providing for straight acreage proration with a maximum of 30 acres assignable to one well.

Ben Belt, geologist for the company, testified that the area is faulted and that these faults separate South Thompson from the Thompson field proper. The operators recommended that the commission require 900 feet of surface casing cemented 400 feet above the shoe, and an oil string cemented to within 4000 feet of the surface with a minimum of 300 sacks of cement.

Texas Gulf Coast

Deep oil sand opened at Fannett, Jefferson County

Houston.—A new oil sand, the deepest for Fannett field, was opened last week when Gulf Oil Corporation's Bordages 2, J. Probarth Survey, came in flowing 845 barrels of 36.4-gravity oil daily through a ¼-inch choke through 21 perforations at 8275-85 feet. The well, in Jefferson County, was drilled to 8296 feet and 5½-inch casing was set at 8296 feet. After perforating casing the well was washed in and flowed its capacity through a ¼-inch choke with a tubing pressure of 1500 pounds and casing pressure of 1300 pounds. Top of the sand was at 8235 feet.

Bordages 2, on the northwest side of the field, is about 100 feet from Thomas 20, a deep gas and distillate producer. Thomas 20 was completed in May, 1939, flowing from 7660-80 feet, and at that time was the deepest well ever drilled at Fannett. The field has been producing from Frio sands at 3200 to 4500 feet, 4800 to 5000 feet, 5600-70 feet, 6535 to 6615 feet, 7464-80 feet, and from 7660-80 feet. Estimated ultimate recovery of the field was set at 4,000,000 barrels, but the new discovery will increase that figure greatly.

Over 3 miles northeast of the discovery well at Rosenberg, Ft. Bend County, Magnolia Petroleum Company abandoned Huntington 1, H. Scott League, after making several tests that showed gas, distillate and salt water. The well was drilled to 8698 feet in sandy shale and 7-inch casing was set at 8550 feet. The first test was made at 8666 feet and it showed salt water and gas. The well was then perforated at 8250 feet and it flowed three barrels of distillate per hour through a 9/64-inch choke. Pressures dropped and the well was plugged back and tested at 8179 feet, where 22 barrels of distillate daily flowed from the well. It was finally plugged back and tested at 8035 feet, had salt water and was abandoned.

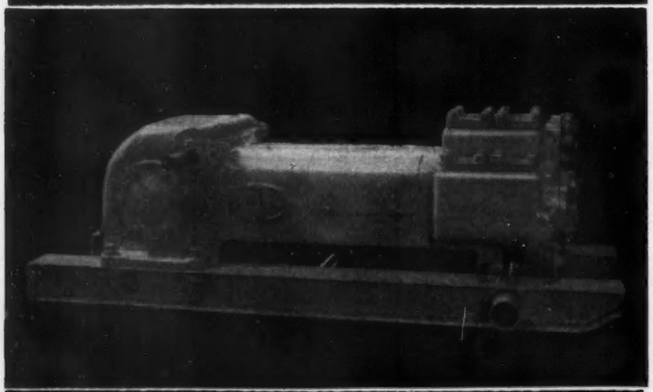
Humble Oil & Refining Company's Miller 1-B, and north of the Rosenberg discovery, cored gas and distillate sands to 7727 feet. Top of the sand was reported at 7718 feet. It was drilling in shale at 7827 feet. West of the discovery, Fred Browning's Socha 1 was flowing 4 barrels of 59-gravity distillate per hour along with some salt water, through a 3/16-inch bottom hole choke. The well was perforated with 39 holes at 7713-34 feet. Tubing pressure was 1050 pounds and casing pressure was 2900 pounds. The outpost showed distillate and salt water the previous week when casing was perforated with 10 shots at 8151-57 feet.

The Texas Company has uncovered

NOVO

SALES AND SERVICE BY

National SUPPLY COMPANY



NOVO POWER PUMPS, Model O. P., Horizontal, Duplex, Double Acting, for general oil field service including oil, water and slush. They are fully enclosed and roller bearing equipped — interchangeable for capacity and different types of service.

See any National Supply Store for sales service and information.

PUMPS • ENGINES • GENERATORS • STARTING UNITS

NOVO ENGINE CO.

247 Porter Street

LANSING • MICHIGAN

"LEGAL HISTORY OF CONSERVATION OF OIL & GAS"

Published by the

AMERICAN BAR ASSOCIATION

Mineral Law Section

A Symposium consisting of 11 papers that as a whole give the legal history of the regulation of the oil and gas industry in the principal producing states in the interest of conservation; and, which at the same time contain much instructive data and interesting discussion relating to the political and economic phases of governmental regulation of an industry.

302 Pages — Fabrikoid Binding — Price $2.50

Send orders to the

GULF PUBLISHING COMPANY

P. O. BOX 2811 HOUSTON, TEXAS

a new producing sand at Pickett Ridge, Wharton County, in Pierce Estate A-20, which was completed in 1936 as a gas well at 4690 feet. The well was worked over and carried down to 4793 feet to oil sand, topped at 4777 feet. It came in flowing 103 barrels of 34.7-gravity oil daily through a 12/64-inch choke with a tubing pressure of 500 pounds and a casing pressure of 1500 pounds. Other wells completed in the field in the Frio sands at 4700 feet have flowed from 22- to 26-gravity oil.

Lissie prospect, Wharton County, will receive another wildcat by Strake Petroleum Corporation. Location was made for Poole 1, G. H. & H. Survey, projected to 10,500 feet. O. G. Garvey announced location for two new wildcats north of Louise. Both Stockton 1 and Menefee 1 are in the S. P. Middleton Survey.

South of production at Hardin, Liberty County, J. R. Nowery's Humphrey 1 was completed flowing 83 barrels of oil daily through a 3/32-inch choke with a tubing pressure of 1000 pounds and a casing pressure of 975 pounds. The well topped the oil sands at 7590 feet.

Three miles north of Cedar Point, Chambers County, George Anderson's Lawrence 1, W. D. Smith Survey, was being washed down to 7215 feet to take side wall cores. The wildcat cored a sand at 7131-35 feet which had an oil odor. Salt water sand was cored at 7199 feet.

Humble Oil & Refining Company's Bassett Blakely 1, Danbury, Brazoria County, was flowing salt water with no oil from 5713 feet into the burning pits. The test was drilled to 5713 feet in shale and 7-inch casing was set at 5678 feet after a sand with a show of oil was cored at 5694-5713 feet.

About 2200 feet northwest of the Anchor discovery, Brazoria County, Glenn H. McCarthy's Salmon et al 1, George Robinson Survey, showed salt water when casing was perforated with 24 shots from 9400-06 feet. Cement retainer was being drilled out for another test.

Old Ocean Extended

Old Ocean field, Brazoria County, was extended to the east when Stanolind Oil & Gas Company completed its first well for the field, Giles 1. It made 601 barrels of 37-gravity oil daily through a ¼-inch choke after casing had been perforated with 240 shots at 10,077-117 feet. Hole was bottomed at 10,600 feet and 7-inch casing was set at 10,585 feet. Sun Oil Company completed Borsodie 3 in this area. It flowed 530 barrels of pipe line oil daily after casing was perforated at 10,107-137 feet.

Northwest of Manvel, Brazoria County, S. E. W. Oil Corporation located L. P. Van Werder 1, wildcat in the A. C. H. & B. Survey, Mustang Mound prospect.

In the Sheppard area, San Jacinto County, Harrison & Abercrombie's Lockin 1, Wm. Hayes Survey, was shut down at 8500 feet after running electric log. Salt water sands were cored at 8405 feet in the Wilcox formation.

Titantic Oil Company's second well on the northeast side of South China, Jefferson County, was waiting on orders at 7521 feet. Guiterman B-1 ran an electric log and it failed to show a good sand. The first well in this area had about 40 feet of oil sand.

Louisiana Gulf Coast

Iberville parish wildcat has 59 feet of oil sand

Lake Charles.—First major strike in South Louisiana this year is Superior Oil Company's Schwing 1, Section 74-9s-10e, southwest flank of Bayou Blue, Iberville Parish. The well logged 59 feet of new oil sand for the dome at 5003-62 feet. Six side wall cores were taken at 10-foot intervals in the sand and it showed dark oil saturation. Casing was set and perforated with 76 shots at 5003-17 feet and at 5025-30 feet. Screen and liner is being run for a production test.

Bayou Blue field was discovered in September, 1929, when Standard Oil Company of Louisiana's Wilbert 3 came in for 15 barrels of 18.7-gravity oil daily from 1928 feet. The hole was drilled to 2792 feet in salt. Later development on top of the dome showed oil sands in Pliocene and Miocene formations at 1700 and 3700 feet. The field has produced around 75,000 barrels of oil since discovery, and has been dormant for several years.

When development of flank production around old salt domes in South Louisiana started several years ago, Humble Oil & Refining Company leased up several hundred acres around the flank of this dome and did considerable geophysical work, and drilled several deep wells on the east and northeast side of the dome and then surrendered the acreage. Subsequently, Superior Oil Company took over 1000 acres in the area and agreed to drill an 8000-foot test. The company also took acreage from Baiste Cooperage Company and A. R. Albritton.

The credit for discovery of this new deep sand at Bayou Blue probably should be given to the geological department of Superior Oil Company. The company has been successful in finding flank oil at Jennings, Acadia Parish, West Hackberry, Cameron Parish, and other areas. Schwing 1 was probably located in belief that it would stand a chance of making a well either in the Miocene or the Oligocene formation, going to greater depths before reaching salt. Most of the wells drilled at Bayou Blue have probably been drilled too close to the dome and the only shot at production was in the Miocene formation before reaching the salt. Should the wells have been drilled further away from the dome, there would have been two shots at production, one in the Miocene and the other in the Oligocene formation.

New Sand

Tide Water Associated Oil Company's Manhatten Fruit Company 11 has discovered a new sand on the south flank of Venice dome, Plaquemines Parish. After casing was perforated at 7670 to 7706 feet, the outpost flowed 224 barrels of 31.5-gravity oil daily through a ⅛-inch choke. Tubing pressure was 1175 pounds.

Phillips Petroleum Company's Miami Corporation 1 in the Little Cheniere area, Cameron Parish, blew out last week at 10,195 feet and blew wild for 20 minutes before it bridged. The drill pipe was stuck and operators are now fishing. This wildcat logged a sand at 10,195 feet which carried an odor of gas. When the fishing job is completed, operators will core deeper in search of the oil sand.

Over ¼ mile southeast of production at Ville Platte, Evangeline Parish, Danciger Oil & Refining Company's Vidrine 1 cored a sand with a gas and distillate show in the upper Wilcox at 9968-93 feet and was coring ahead in the Wilcox at 10,220 feet. It is expected to make an oil producer in the deep formation.

Confirmation Test

The second oil well for Barataria, Jefferson Parish, is Gulf Oil Corporation's Rathborne 1, south of the discovery. After drilling to 8210 feet and setting casing at 8195 feet, screen and liner were set and the well came in flowing 106 barrels of pipe line oil in 6 hours through a ¼-inch choke. The discovery was completed at 8204 feet.

In the West Bay area, Plaquemines Parish, Gulf Oil Corporation has run 7-inch casing at 10,103 feet in Buras Levee District 1-D to protect the hole. The wildcat is showing salt water and also heaving shale. The wildcat reportedly had a show of oil up the hole.

On the Erath prospect in Vermilion Parish, The Texas Company's Vermilion Parish School Board 1 was coring in shale in a side tracked hole at 10,801 feet. The gas and distillate sand found at 10,450 feet in the first hole has not been reported in the side-tracked hole. Salt water sands were cored at 10,659-79 feet.

In the West China area, Jefferson Davis Parish, Union Sulphur Company has located a wildcat on the H. Somson tract, Section 35-7s-4w, in the area where the operators drilled Tietje 1 and Tietje 2. In St. Mary Parish, Joe Dominque announced location for Allain 1 in 17s-19e.

Another Test

Tide Water Associated Oil Company is preparing another drill-stem test on Delta Farms 1, in the Delta Farms area, Lafourche Parish. Casing was last perforated at 8917-22 feet and drill stem was being run into the hole. A test at 8909-18 feet showed five joints of distillate and a 2800-pound flowing pressure. Shut in pressure was 3150 pounds.

At Golden Meadows, Lafourche Parish, Bennett Oil & Refining Company's Authement 1, Section 12-19s-22e, blew out and was still blowing at the end of the week. The well was making gas, distillate and salt water, and pressure was so strong it blew the Christmas tree connections loose. Authement 1 was drilled to 8605 feet in shale and 7-inch casing was set on bottom. An electric log showed three new oil sands at 8360 to 8400 feet, 8435-50 feet and at 8550-60 feet.

At Charenton, St. Mary Parish, DeArman et al has commenced developing a new shallow sand at 950 feet. Two wells were completed in this shallow horizon, making over 400 barrels each, about 50 percent salt water.

North Louisiana

Sugar Creek extension indicated by saturated core

Shreveport.—A ¾-mile extension of the Travis Peak producing horizon in the Sugar Creek field, Claiborne Parish, appeared likely last week after Sugar Creek Syndicate's Robinson 1, NE SE 32-20n-5w, cored oil saturation. Total depth is 5815 feet. Operators reamed down preparatory to setting final casing. The syndicate, which has developed this unitized field, is composed of Standard Oil Company of Louisiana, Union Producing Company, and Triangle Drilling Company.

On the southwest flank of the shallow Converse field, Sabine Parish, that produces from the Saratoga and Annona chalk horizons, as well as from the Wolf City, Noyes B. Livingston's Bowman Hicks Lumber Company 1, SE SW 36-9n-14w, was testing after casing was perforated from 3134-50 feet, and from 3188-96 feet. The test showed gas, oil and wash water, with some drilling mud and salt water working out of the formation with the gas. The gas, estimated at 2 to 3 million cubic feet daily, is believed coming from both sections perforated and the oil is believed coming from the 3134-50-foot horizon.

Gulf Refining Company cored hard sand at 8301 feet in Hodges 20, NW NE 24-16n-12w, deep test in the shallow Elm Grove field, Bossier Parish, after a drill-stem test from 8261-93 feet, with ⅜-inch chokes at top and bottom failed to show any oil or gas in 10 minutes.

In LaSalle Parish, Arkansas Fuel Oil Company and H. L. Hunt's Goodpine 1, NW NW 18-10n-3e, deep wildcat test, drilled at 5808 feet, and Harry Hanbury's and Standard Oil Company of Louisiana's Bienville Parish wildcat, Holstun Unit 1, NE SW NE 29-18n-6w, drilled broken anhydrite at 5122 feet.

Louisiana permits

Twenty-five drilling permits were issued last week by the Louisiana Conservation Commission of which 11 were in North Louisiana, divided among the following parishes: Bossier, 2; Caddo, 6; Sabine, 1; and Webster, 2. The 14 in South Louisiana were in the following parishes: Acadia, 2; Avoyelles, 2; Cameron, 1; Evangeline, 1; Jefferson Davis, 1; St. John the Baptist, 1; St. Martin, 1; St. Mary, 4; and West Baton Rouge, 1.

Arkansas

Wildcat near Junction City going on from Buckner

El Dorado.—Center of interest in drilling activity in South Arkansas last week was Barnsdall Oil Company's Cameron 1, SW NW 36-19-17, Union County, near Junction City, which prepared to drill deeper from 8848 feet after it topped Buckner anhydrite at that level. The test is a geophysical prospect to be drilled to the Smackover lime, which in deep producing fields of South Arkansas immediately underlies the Buckner series.

Gulf Refining Company abandoned its geophysical wildcat prospect in Columbia County, 3½ miles northwest of the Dorcheat (Experiment) field. The test was George Lewis 1, SW NE 12-18-23, drilled to 9065 feet in Smackover lime which showed salt water.

The fifth well for the Dorcheat field was completed at Shell Oil Company,'s W. P. Keith 1, C SE SE 9-18-22, which made 105 barrels of distillate in 24 hours at 8879 feet.

Tide Water Associated Oil Company, discoverer of the Atlanta field, Columbia County, now 13 months old, is reported to have a 20-well drilling program for that field for 1940.

Two wells were completed in the Schuler field, Union County, which has been practically drilled up. One was on the west edge of the field and the other on the east edge. The Magnolia field, which has 87 producers, failed to enter the completions column but had one operation running final casing for completion.

Arkansas permits

Only one drilling permit was issued last week by the Arkansas Oil & Gas Commission, as follows: Columbia County—Oliphant Oil Company, A. Rowe 1, 460 feet north and 660 feet east SWc 16-17s-20w.

Mississippi

Tinsley's seventeenth is best well with 1850-barrel flow

Jackson.—The seventeenth and largest well of the Tinsley Dome field, Yazoo County, was completed last week on the northwest edge of production at Jones & O'Brien's Stevens C-2, NE NE 11-10n-3w. The well was completed from 20 feet of Woodruff sand logged from 4730-50 feet, flowing 1850 barrels of oil daily through 30/64-inch choke with casing and tubing pressure equalized at 300 pounds, from 4750 feet. Seven-inch casing was set at 4723 feet.

Also at the completion stage was Hassie Hunt's Ida Fair 1, C E½ SW 13-10n-3w, which set 5½-inch casing at 4550 feet, after drilling to 4992 feet. Woodruff sand was cored from 4585-4605 feet.

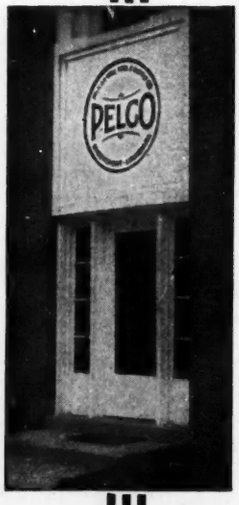
Of twelve additional operations at Tinsley Dome, including 6 drilling tests, the most advanced is Union Producing Company's Jennie Stevens 4, C SE SW 12-10n-3w, drilled to 4822 feet and awaiting a drill-stem test.

Fred E. Courson and associates announced plans to drill to 6000 feet in a Jefferson Davis County wildcat, L. J. Bailey 1, SW SW NE 4-6n-18w, which ran electrical log to 4035 feet in the Wilcox; elevation is 490 feet (derrick floor). The test showed salt water when formation tester was run at 3651-73 feet, open 10 minutes with ¼-inch chokes top and bottom.

Sixty-two geophysical units were

Henry Probably Has Something There!

Henry Ford points out that a man must either foster a business or work for some one who does. We haven't been able to figure out which we do, but it really isn't important. Collectively we bear a firm title, but individually and collectively we've worked enthusiastically for oil men for more than thirty years and like it. Apparently they like it. We've had steady employment with frequent promotions.



PELICAN WELL TOOL & SUPPLY CO.

SHREVEPORT LOUISIANA

PELCO

Houston
Greggton
Houma
New Iberia
Magnolia

working Mississippi last week and three similar crews were working in western Alabama.

L. W. Dennis of Tyler, Texas, has assigned to J. C. Hawkins of the same place a block of 10,000 acres in Township 14 north, Range 4 east, Holmes County, for a test to spud within the next two weeks. Fohs Oil Company is taking a block around Section 23-3n-5e, Rankin County, and in the same county C. M. Dorchester is leasing around Section 18-8n-6e, where Sun Oil Company has also been leasing. G. L. Tatum took a 5000-acre block for a major oil company in Townships 11 and 12 north, Range 8 east, Leake County.

Rocky Mountain States

Lance Creek east outpost has show in Jurassic pay

Casper, Wyo.—Eastern extension of the Sundance producing sands in the Lance Creek area of Niobrara County, eastern Wyoming, is indicated this week in saturated sand cores recovered at 4308-12 feet in the Jurassic formations by Continental Oil Company's Rodeo 3 OPC-4, SE NE NE 35-36n-65w, eastern outpost location in the major Rocky Mountain producing field.

The test drilled into the top of the Sundance sand at 4303 feet, encountered saturation at 4308 feet, and drilled deeper to 4312 feet in the oil sand. The 4¼-inch casing string was run and cemented on top of the saturated section, and operators were preparing to drill plug for a production. Located ½ mile east of the nearest commercial production in the Lance Creek field, the well is an old Muddy sand producer originally completed in 1919 at 3708 feet, was abandoned, and is now deepening to test eastern extent of production in the Sundance and Minnelusa oil sands.

Several other wells in the pool are nearing critical depths, while work has been started on all but 1 of the 7 new locations released a week ago. Ohio Oil Company topped the objective Leo sand of the Minnelusa series at 5459 feet in Cash 4 OPC-1, NWc NE SW 4-35n-65w, an inside location in the Lance Creek field. It is deepening in the formation below 5475 feet. Also within the proved producing area of the field, Continental Oil Company's Tom Bell 17, SE SE NE 33-36n-65w, logged the objective Leo beds at 5267 feet, and was coring below 5300 feet in saturated sand.

Gas and some oil were showing at E. L. Moore's Irwin 1-X, CSW NE 33-7n-95w, wildcat test drilling on the Trull anticline, Moffat County, Northwestern Colorado. Well has drilled to 2220 feet, where operators were working to reset the 6⅝-inch casing string cemented at 2115 feet to shut off water encountered at 2055-80 feet. Top of the Morrison sand was logged at 2165 feet, and well is bottomed approximately 50 feet above the Sundance, principal producing horizon in the Iles Dome field several miles south of the test well.

Arizona

Arizona activity expected to increase in 1940

Phoenix, Ariz.—D. A. Holm, consulting geologist for the Arizona State Land Department, in reviewing the prospects for increased wildcatting in 1940, has estimated that over 20 wells will be drilled in the state. Holm stressed unusually active lease-taking throughout the state as the most important indicator of increased activity.

A number of blocks are being formed in the Salt River Valley, notably near Phoenix, Buckeye, Arlington, Glendale, Beardsley, Cashion and Laveen. Several are in preparation southeast of Phoenix between the Salt and Gila valleys, and one is reported in Paradise Valley north of Scottsdale. Two large blocks have been made up in southeast Pima County. Several scattered groups of acreage have been accumulated in the Sulphur Springs Valley in Cochise County.

A large block on a surface structure southeast of St. Johns in Apache County will be drilled early this year, and Navajo County has one of its numerous surface structures blocked. Geophysical activity is expected to be more than doubled in 1940. In 1939 three structures were mapped by plane table, one by seismograph, two by magnetometer, and one reported to have been checked by soil analysis.

State lands now leased for oil total 200,000 acres, and there are 8 rigs drilling or shutdown at present, most watched of which is Yuma Valley Gas & Oil Company's Musgrove 1 in southern Yuma County. This well reportedly cored 15 feet of partial saturation at 3700 feet.

New Mexico

Longest Casing at Rattlesnake to be perforated for test

Hobbs.—The longest casing string used in New Mexico has been set by Continental Oil Company and Petroleum Finance Corporation in the drilling of a third Delaware test on their Rattlesnake Dome permit, San Juan County. The partnership's Munoz-Rattlesnake 100, SE NW NE 2-29n-19w, drilled and cored by stages through the 6800-foot oil and gas pay to 7405 feet, where 7-inch pipe was cemented on bottom. Pipe will be perforated for production tests in nominal saturation logged in the Elbert, topped at 7274 feet, and the Mississippian, topped at 7025 feet. Formation tester used in the regular deep horizon at 6720-40 feet yielded 222 barrels of high-gravity oil with a gas flow rated at 1,200,000 feet daily.

The Rattlesnake area has held the producing depth record for the state since the above partnership completed Munoz-Rattlesnake 17, SW SE NE 2-29n-19w, in April, 1929, from broken pay at 6769-6985 feet. This well went to water in September, 1931, after flowing 375,000 barrels of oil. Munoz-Rattlesnake 24, SW NW SW 1-29n-19w, was completed in 1932 after plugging back from 7370 feet, and currently flowing

It's easy to select the right Valve Cup

Operators, store men, warehousemen and engineers will welcome this ingenious device. The Darcova Cup Selector includes in small space all the information for which you previously had to look in complicated charts.

The various sizes of cups are listed consecutively around the outside of the center dial, and the names of the manufacturers and trade names of the pumps are listed in the lower panel on the face of the selector.

To determine the size of the cup for use in any pump it is merely necessary to set the size and name of the pump opposite the manufacturer's name in the lower window and read the proper size of cup in the upper window.

In order to obtain the proper pump on which any size cup may be used, the size of the cup is set in the upper window and the name and size of the pump is read opposite the manufacturer's or pump name in the lower window.

This size and design of the selector permits desk use or filing. Or, the Selector may be hung in any convenient location, making the desired information readily accessible.

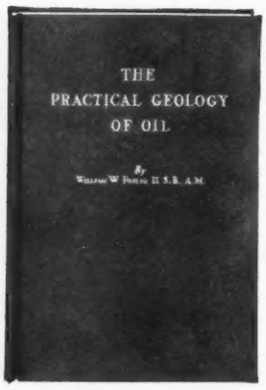
It pays to select DARCOVA, DARVAL, DARFLEX and DARCOVA PUMCUPS

Made by the makers of the original composition valve cups

DARLING
VALVE & MFG. CO
Williamsport, Pennsylvania

"The Practical Geology of Oil"

By WILLIAM WOOD PORTER, II, S.B., A.M., Consulting Geologist



A new book written for the field men in a simple, understandable language. In it will be found answers to the questions that come up from day to day in the drilling of an oil well, concerning the geology of the well.

Practical oil men will find that this book is interesting to read and that it will give them a better background for their work.

CONTENTS

CHAPTERS:

1. **Geological Problems.**
2. **Geological Names.**
3. **Introduction of Rocks.**
4. **Minerals.**
5. **Rocks.**
6. **Erosion.**
7. **Geological Time.**
8. **Fossils.**
9. **Sedimentation.**
10. **The Crust of the Earth.**
11. **Structural Geology — Folding and Faulting.**
12. **Concentration of Oil.**
13. **Unconformities.**
14. **How Wells Are Drilled.**
15. **Geology of the Hole.**
16. **Geological Exploration.**
17. **Geological Maps.**
18. **What Price Oil Fields.**
19. **Sources of Geological Information.**

145 Pages **Size: 5½" x 8¼"**
Cloth Binding **Price: $1.50**

Send Orders to

The Gulf Publishing Co.

P. O. Box 2811 **Houston, Texas**

and pumping about 40 barrels oil with considerable water daily.

The production quota for New Mexico during February was advanced from 101,900 barrels to 113,000 barrels daily by the Conservation Commission, making it possible to restore Lea County well allowable from a record low level of 40 barrels to 45 barrels daily. The maximum allowable of Eddy County wells remains unchanged at 65 barrels daily.

Magnolia Petroleum Company has started operations on 3 additional tests in the Vacuum field, and contributed one of the outpost completions listed the past week. The company's State 3-P, C NW NE 26-17s-35e, most northeasterly test, made 214 barrels initial after 500-quart nitro shot at 4427-4570 feet, with an elevation of 3921 feet. Its State-Bridges 53 and 55 were assigned to the undrilled sites in NE 23-17s-34e, and State-Bridges 54 was spotted at C SE SE 14-17s-34e. Productive limits of the field were expanded to the southwest through completion of The Texas Company's State 1-AA, C NE NW 3-18s-34e, which pumped 62 barrels initial from broken lime at 4470-4750 feet, with an elevation of 4041 feet.

Operations in Lea County have been lagging since the first of the year without a plausible explanation. Only 4 new tests were authorized the past week. These included the Vacuum field tests, and Skelly Oil Company's Ellen Sims 5, NW NW NE 3-23s-37e, near east edge of the Skelly pool.

Two wells are in process of completion in the Rhodes gas and oil pool on leases being developed by The Texas Company et al. The partnership's State 1-Y, near C W½ SW NE 16-26s-37e, threatened to blow out at 3019 feet, and rotary mud will be thickened before deepening. W. H. Rhodes 1-B, NE SW NE 27-26s-37e, halted at 3280 feet, or 289 feet sub sea, and is bailing down for a production test.

California

East Coalinga field extended by 3000-barrel well

Los Angeles. — Amerada Petroleum Corporation's Ewing 22-20, Section 20-19-16, flowed 27.5-gravity oil at the rate of 3000 barrels a day from 8182 feet to provide a southeast extension to the East Coalinga pool of Fresno County. The well had 1,200,000 cubic feet of gas along with the oil.

In the pool proper, Robert S. Lytle's 37-18F, Section 18-20-16, flowed 2300 barrels of 31.4-gravity oil from 7824 feet and was completed. Bandini Petroleum Company's 46-18B, Section 18-19-16, was showing free oil in fractures while coring below 8800 feet in Cretaceous shale.

A water shutoff was effective at 10,052 feet in Western Gulf Oil Company's KCL A-74-3, Section 3-32-26, third well in the new Paloma field, Kern County. It was being completed.

Tide Water Associated Oil Company's Porter 3 was completed as the company's fifth well in the Aliso Canyon field, Los Angeles County. It swabbed 2400 barrels of 25.3-gravity oil from 5445 feet. The well, credited with a potential twice as large as the last completion and with oil of 1 degree higher gravity, was shut in to aid the voluntary curtailment program. Also shut in was Tide Water Associated Oil Company's McGonigle 16, in the Ventura Avenue field. It established a potential of 1320 barrels of 30-gravity oil with 1,500,000 cubic feet of gas at 10,100 feet.

In the Newhall-Potrero pool, Barnsdall Oil Company's Rancho San Francisco 1 was deepened from 6472 to 7012 feet and completed for 900 barrels of 33.8-gravity oil.

Consolidated Petroleum Company's Needham 1, wildcat in Section 13-3-16, the Newhall area, was preparing for a production test at 4392 feet.

After swabbing muddy, oily water from bottom at 12,144 feet, Union Oil Company's Bowerbank 4-23, Goose Lake-Buttonwillow wildcat in Section 23-29-24, plugged back to 11,770 feet and was retesting.

Michigan

Muskegon wildcat has oil in Traverse; may deepen

Mt. Pleasant, Mich.—Strom & Shiffmans' Lund 1, wildcat in NW NE NE 15-11n-16w, Dalton Township, Muskegon County, swabbed 29 barrels and filled up 100 feet in 2 hours on the first production test after bottoming hole at 1870 feet in Traverse lime, topped at 1842 feet. Operators were undecided whether to deepen to the Dundee, or to acidize the Traverse pay. The wildcat is approximately five miles north of the old Muskegon field.

Seaboard Oil Company prepared to deepen Martin 1, NE NE SW 17-5n-10w, Caledonia Township, Kent County, into the Dundee-Monroe beds after failing to log commercial zones in the Traverse lime, original objective of the wildcat. Traverse was topped at 1934 feet, and drilling temporarily suspended at 1974.

Fisher & McCall, Inc.'s Brunt 1, Section 30-6s-6e, Dundee Township, Monroe County, was estimated a 250-barrel producer from Trenton lime at 2111 feet after a 100-quart nitro shot. It started at 25 barrels per hour. While not an extension, the test is so located between previously drilled producers to point to several new active locations.

Three completions in the Temple field, Clare County, all on flanks indicated several new starts in the area. However, Sun Oil Company's State 1, SW NW 11-19n-6w, 3 miles northeast of the proven area in Temple, failed to develop commercial Monroe lime production although it checked favorably on structure. Monroe top was reported at 3871 feet and hole was bottomed at 3926 feet. Operators prepared to plug back to 1450 feet and test oil saturation in the Michigan Stray at 1411 feet.

C. L. Maguire, Inc.'s Clark 1, SE SE SE 32-16n-2w, Warren Township, Midland County, 5 miles east of the present drilling play in the Wise field, Isabella County, topped Dundee at 3726 feet and at 3827 feet had not logged oil saturation.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Experiment-Dorcheat)—		
Shell, W. P. Keith 1, 9-18-22	105	8879
Union County (Schuler)—		
Lion, Land 1, 13-18-18	250	7645
Phillips, S. H. Goodwin 1, 19-18-17	225	7690
Columbia County (Wildcat)—		
Gulf, Lewis 1, 12-18-23	*	9065

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Los Angeles County (East Coyote)—		
Master Pet. Co., Wright 1	125	5550
Standard, Coyote 2-13	416	4680
Orange County (Huntington Beach)—		
Southwest Explo. Co., State 23	531	4490
Los Angeles County (West Montebello)—		
R. R. Bush, Zanetti 2	360	7676
Los Angeles County (Rosecrans-Athens)—		
Thos. Kelly & Sons, McMillen Comm. 1	135	7693
Union, Rosecrans 36	138	7700
Los Angeles County (Wilmington)—		
Bond Pet. Co., Star Drilling (LB) 1	260	3337
Kern County (Buena Vista Area)—		
Richfield, BVA 81-36, (original depth 11,379 ft)	¶15	5460
Kern County (Belridge)—		
Belridge Oil Co., No. 26	454	8500
Fresno County (East Coalinga Eocene)—		
Standard, No. 66-13C	3676	7710
Kings County (Kettleman Hills)—		
Standard, No. 74-21Q	1900	8080
Kern County (Lost Hills)—		
Tidewater Associated, Elliott 8A	4	1475
Kern County (Rio Bravo)—		
Union, KCL 52-34	549	11,511
Kern County (Ten Section)—		
Shell, KCL B-74-25	2810	8200
Ventura County (Rincon)—		
General, Tomson 4	79	4000
Ventura County (Ventura Avenue)—		
Tidewater Associated, McGonigle 16	852	10,100

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Bond County—		
R. E. Jones, Huber 1, ne nw nw 28-6n-4w	*	1450
Clark County—		
LeRoy Trulock, Fee 2, se se ne 18-12n-14w	*	505
Clinton County—		
Algona Oil, Skipper-Koeling 2, nw sw se ne 13-1n-1w	1015	2910
Paul Mosebach, Maddox 1, sw sw sw 4-1n-3w	1047	2434
Shell, Kreitler 2, ne nw ne se 13-3n-1w	19	1469
Kreitler 3, se ne se 13-3n-1w	*	1471
Fayette County—		
Gulf, Small 17, nw sw ne 36-6n-2e	125	1620
Ohio, Swarm 10, se se se 36-6n-2e	163	1615
Swarm 11, c se ne se 36-6n-2e	252	1619
Williams 4, sw sw se 36-6n-2e	74	1621
Schwarm 5, c sw nw sw 31-6n-3e	192	1614
Carter, Durbin 10, se sw se 5-7n-3e	360	1587
Durbin 11, sw se se 5-7n-3e	138	1583
Minerva Oil Co., Bail 1, sw sw se 16-7n-3e	94	1587
Carter, Welker 4-A, ne ne nw 18-7n-3e	48	1515
Shell, Fulton 14, c ne sw nw 28-7n-3e	66	1579
Jarvis Bros., Welker 11, ne ne sw 31-7n-3e	150	1572
Texas, Wooten 7, c e l se sw sw 31-7n-3e	189	1533
Carter, Sinclair 5, sw nw ne 2-8n-3e	174	1604
Wood 9, sw sw sw 15-8n-3e	90	1450
Drees 7, nw nw nw 22-8n-3e	70	1533
Mills 3, sw sw nw 28-8n-3e	212	1550
Jefferson County—		
Beavers et al, Eichman 3, nw se ne ne 28-2s-1e	*	2275
Marion County—		
Texas, City of Centralia 45, se c sw 4-1n-2e	70	1894
Richardson 9, ne sw sw se 5-1n-2e	140	2064
Friedrich 5, se se sw 6-1n-2e	224	1864
Friedrich 6, sw nw ne nw 7-1n-2e	224	1864
Friedrich 7, sw sw ne 7-1n-2e	210	1853
Friedrich 8, sw nw se nw 7-1n-2e	441	1864
Friedrich 9, nw nw ne nw 7-1n-2e	360	1858
A. J. Delano, Sherman 1, sw nw nw 13-2n-2e	*	900
Magnolia, Young 31, 60 ft n of nw sw ne 20-2n-2e	2964	3416
Ohio, Young Hrs. 33, ne ne sw 20-2n-2e	2471	3440
Shell, Salem State Bank 2C, se nw nw se 20-2n-2e	3420	3420
Salem State Bank 9-C, ne se nw se 20-2n-2e	3100	3421
Magnolia, Young 71, c w½ ne nw 28-2n-2e	215	2095
Young 74, ne nw se nw 28-2n-2e	205	2090
Shanafelt 31, 102 ft n of ne sw se 29-2n-2e	2435	3440
Texas, Dunning 11, c w½ se se 30-2n-2e	287	1971
Wayman 19, c w½ nw ne 31-2n-2e	224	1950
Williams 16, c n½ sw sw 32-2n-2e	252	1900
Pure, Scrugham 1, sw ne sw sw 18-2n-8e	275	3120
Harvey, Kagey 6, ne se se se 33-3n-2e	4200	3547
Richland County—		
Pure, Murray 4, 67 ft w of c w½ se nw 6-4n-10e	865	2910
Varner 3, c e½ nw nw 6-4n-10e	411	2885
Murray 3, c e½ of se sw 31-5n-10e	538	2885
Wabash County—		
Mabee Drlg. Co., Bump 2, se sw nw 9-2s-13w	131	2445
Bump 3, ne sw nw 9-2s-13w	85	2445
Continental, Gray 4, ne se sw 20-2s-13w	35	1727
W. N. Bartlett, Gray 4, sw nw sw 29-2s-13w	180	1759
Washington County—		
Shell, Kazmerek 1, c ne nw ne 19-3s-1w	47	1362
Harry Hubbard, Carson 1, nw sw nw 25-3s-3w	*	943
Wayne County—		
Pure, Gill 1, se nw nw nw 19-2n-8e	171	3095
White County—		
H. H. Weinert, Weir 1, ne se nw 29-3s-8e	*	3390
Jarvis Bros., Spencer 1, nw c se 31-4s-11e	*	1698
Superior, Ford 13, sw se sw 4-5s-14w	150	2197
Heenan-Coe, Storms 1, 260 ft n of nw se ne 23-6s-9e	450	2265

Indiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Clay County—		
Dorsey Oil Co., Hickman 1, nw nw se se 15-9n-6w	*	480
Gibson County—		
Continental, Keck 2, sw se sw 27-3s-14w	60	2809
Owen County—		
J. C. Ellis & Young, Rice 1, ne c ne nw 29-11n-3w	*	1135
Posey County—		
Superior, New Harmony 24, se se ne 27-3s-14w	300	2208
Haynes & Thomas, Seifert 4, nw nw sw se 19-6s-12w	80	2391
Spencer County—		
Damron et al, Tullis-Williamson 1, sw ne sw se 19-7s-6w	¶11,206	903

Summary of Drilling Operations in the United States, Week Ended February 3, 1940

	WELLS COMPLETED							NEW WELLS STARTED*				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Total 1939
Alabama	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	4	3	.....	1	580	22	32	.....	.....	7	19	223
California	15	15	.....	.....	12,282	145	108	17	17	114	116	1,136
Colorado	.....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois*	57	49	.....	8	29,259	393	352	53	53	429	.....	893
Indiana	6	3	1	2	440	48	11	.....	.....	.....	.....	.....
Kansas	18	14	2	2	17,207	162	126	29	29	146	132	1,583
Kentucky	2	1	.....	1	60	34	89	.....	.....	.....	.....	.....
Louisiana	29	19	2	8	8,776	176	91	25	25	127	107	1,449
Michigan	14	10	.....	4	5,799	148	107	23	23	158	86	1,419
Mississippi	1	1	.....	.....	1,850	17	1	.....	.....	.....	.....	.....
Missouri	2	.....	.....	2	.....	2	.....	.....	.....	.....	.....	.....
Montana	2	2	.....	.....	173	20	11	.....	.....	.....	.....	.....
Nebraska	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico*	6	5	.....	1	1,995	87	72	6	6	75	.....	293
New York	19†	19†	.....	.....	123	125†	58†	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	11	3	6	2	14	118	96	.....	.....	.....	.....	.....
Oklahoma	45	22	3	20	11,089	226	202	36	36	195	197	2,059
Pennsylvania	51†	36†	5	10	39	255†	141†	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas	172	121	11	40	102,658	1,097	1,080	343	343	1,311	941	10,269
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	13	4	6	3	40	85	60	.....	.....	.....	.....	.....
Wyoming	3	2	.....	1	728	21	27	.....	.....	.....	.....	.....
Total this week	470	329	36	105	193,092	3,183	2,667	532	532	2,564	1,598	18,752
Total last week	502	353	43	106	203,763	2,713	2,154	447	2,036	2,036	1,307	18,752
Total this year	3,183	2,267	211	705	1,096,802	.....	.....	2,564	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.

United States Well Completions—*Continued*

Kansas

Barton County—
Sinclair Prairie, Oser 3, nw swc se 17-16-11w 3000 3247
Derby, Esfeld 9, swc nw 29-16-11w 729 3314
Johnson, Bitter 9, cel ne nw sw 8-16-13w 1531 3373
McBride, Soderstrum 1, se nw ne 21-17-13w 201 3491
Skelly, Bird 1, c se 28-18-15w ....¶16.8 3511
Gulf, Schartz 2, c n½ nw sw 18-20-11w . ..... * 3383
Butler County—
Associated O&G Co., Cook 12, sw sw ne ne 4-26-5e 120 2611
Cowley County—
Springrose Drlg. Co. et al, Waite 1, nec sw 28-31-4e..... * 3373
Ellis County—
Phillips, Sites 2, c n½ ne sw 12-11-18w 3000 3356
Johnson County—
Kasper, Katsh 1, sec nw 33-13-22e ¶.05 794
Rice County—
Cities Service, Culbertson 1, c e½ se ne 26-18-10w 15 3218
Russell County—
Liggett et al, Durham 2, nw se ne 21-11-15w 60 3200
Stanolind, Bond 1, c s½ se sw 23-14-13w 294 3190
Texon, Letsch 12, c e½ se sw 26-14-13w 2109 2875
Skelly, Rein 7, c n½ ne sw 8-15-13w 3000 3200
Mid-Continent, Ochs 3, ne se ne 35-15-14w 696 3346
Stafford County—
Stanolind, McComb 6, c n½ sw nw 12-24-11w 1395 3794
Phillips, Tretbar 1, c s½ se nw 12-24-11w 1057 3738

Kentucky

Butler County—
Commadore Oil, Mefford 1..... * 384
Daviess County—
Daugherty & Ellis, Leet 6..... 60 1218

North Louisiana

Bossier Parish (Wildcat)—
J. K. Wadley et al, Vance Est. 1, 4-19n-13w . ..... * 2690
Caddo Parish (Pine Island)—
Jones Oil Co., Pitts 1, 24-20n-16w.. * 1679
L. R. Skidmore, Landau 1, 1-20n-16w 50 1380
Alph Tillman, Greer 1, 12-20n-16w 50 1520
Whitehurst Drlg. Co., Shreveport Pet. Co. 1, 2-20n-16w..... 40 1554
Sabine Parish (Zwolle)—
Hunter Co., Sabine B-3, 17-7n-13w 30 2114
Texas Co., Giaque B-3, 10-7n-13w.. * 2450
Union Parish (Monroe)—
We Hope G. & O. Co., Frost 9, 24-22n-3e . ..... ¶2½ 2215
Southern Carbon Co., Grayling 35, 17-21n-4e . ..... ¶8½ 2150

South Louisiana

Baton Rouge—
Sugarfield Oil Co., Kaizer Community 1 ..... * 7356
Wm. Helis, Nelson 7..... 214 6485
Eola—
Kennedy et al, Irion 1..... 551 8568
Charenton—
DeArman, Landry 6 ..... 242 948
Landry 10 ..... 100 965
Landry 11 ..... * 1007
Chalkley—
Shell, Hanszen 6 ..... 964 8951
Humble, Sweet Lake Land 6..... * 8665
Golden Meadows—
St. Mary Oil Co., Ledet 7..... 90 5500
Texas Co., LLE Golden Meadows 8 650 7940
LaPice—
Shell, L & I 1..... 52 11,402
Lake Pelto—
Texas Co., State 29..... 120 5743
Port Barre—
Pan American, Garland 3..... 588 5440
Sulphur—
Union Sulphur, Fee 773 (wo) 3744 160
Venice —
Tidewater, Manhatten Fruit Co. 11 225 7790
Ville Platte—
Continental, Fontenot-Deshotels 2, dr to 10,310 ft, pb and comp.... 141 8965
West Gueydan—
Magnolia, Ferguson 4 ..... 98 7161
White Castle—
Shell, Wilbert 15..... 827 6900
Woodlawn—
Union Sulphur, Miller 4..... * 8901
St. Martin Parish—
William Helis, Martin 1, Section 28 dome . ..... * 1181

Michigan

Allegan County—
Daily Crude Oil Co., Weber 1, se ne sw 11-4n-13w ..... * 1616
Red-Man Oil Co., Hibma 1, nw sw ne 4-4n-12w ..... * 1701
Clare County—
Pure Oil Co., Bicknell C1, sw nw se 27-19n-6w 2400 3874
Turner Pet. Co., State F1, c s ne nw 28-19n-6w 200 3877
American Drilling Co., State K1, c n sw ne 32-19n-6w 2000 3879
Kent County—
Smith Pet. Co., Wingelier 1, s s se sw 11-5n-9w ..... * 714
Swanson Oil Co., Decker-Jean 1, se ne se 14-6n-12w..... 15 1940
Midland County—
Pure, Naramore 28, nw se nw 15-13n-1w 214 3370
Monroe County—
Fisher & McCall, Brunt 1, ne sw sw 30-6s-6e 250 2111
Brailey Oil Co., Ault 1, nw sw nw 17-7s-6e . ..... * 2250
Ottawa County—
Smith Pet. Co., Masterson 2, se se se 23-7n-13w 100 1897
Twin Drilling Co., McKay B3, nw sw sw 24-7n-13w 120 1898
McKay-Ginrich 2, sw ne ne 26-7n-13w 100 1869
Wolverine's Snip 1, se se sw 24-7n-13w 400 1940

Mississippi

Yazoo County (Tinsley Dome)—
Jones & O'Brien, Stevens C-2, 11-10n-3w 1850 4750

Missouri

Buchanan County—
Miller et al, Carrough 1, c se se 24-57n-35w . ..... * 2307
Platte County—
Bradford et al, Renner 1, nw ne sw 5-50n-33w . ..... * 541

Montana

Glacier County (Cut Bank Field)—
Texas Co., Lindquist 2, csw se 17-32n-5w 100 2886
Tweedy 2, cne nw 21-35n-6w (recompletion) 73 2987

New Mexico

Eddy County—
Sallee-Yates et al, State 1, se sw ne 2-18s-29e 1200 2676
Underwood-Sanders et al, Guy 4-P, swc ne 9-18s-29e..... 150 2487
Martin Yates & Continental, Brainard 2, nw ne nw 11-18s-29e.... 369 2640
Luna County (Wildcat)—
O. D. Berry et al, Berry 1, sec sw 33-22s-10w . ..... † 1075
Lea County (Vacuum)—
Magnolia, State 3-P, c nw ne 26-17s-35e 214 4570
Texas Co., State 1-AA, c ne nw 3-18s-34e 62 4750

New York

Allegany County—
Trio Oil Co., Lot 8, Bolivar..... 10 1367
E. G. Williams & Co., Williams farm, Bolivar 25 1385
Forest Oil Co., Ackerman farm, Bolivar 18 1415
M. J. Crowley, Coast et al farm, Bolivar 6 1280
Richardson Pet. Corp., Towner farm, Scio 6 1125
Helen Randall, Reid farm, Alma.. 10 1360
Triangle Oil Co., Rathbone farm, Alma 7 1450
Brown & McEnroe, Kemp farm, Alma 8 1245
J. P. Herrick No. 2, Howe farm, Bolivar 8 1340
J. P. Herrick No. 2, Howe farm, Bolivar 6 1352
L. H. Thornton et al, Cornwell farm, Willing 5 1245
Bradford Prod. Corp., Willetts farm, Genesee 5 1420
Bradley & Streeter, So. Penn Co., farm, Wirt 4 1225
Swan & Chesbro, fee farm, Clarksville 5 1290
Water (Intake) Wells
R. B. Moore et al, Curtiss farm, Bolivar 1326
Forest Oil Co., Ackerman farm, Bolivar 1432
Otsquago Oil Corp., Pike farm, Alma 1422
Bradley Prod. Corp., Monitor farm, Alma 1385
Summit Oil Co., Witter farm, Scio ... 1260

Oklahoma

Caddo County—
Yingling et al, Newbern 1, ne ne nw sw 11-5n-9w.....3307 3165
Carter County—
Johnson, Davis 23, c e½ ne sw 6-4s-3w 17 1187
Comanche County—
E. Carter, Johnson 4, sw sec sw 26-2n-11w 4 230
Creel, Johnson 6, sw se ne sw 26-2n-11w . ..... * 250
Creek County—
Sand Springs Home, Atkins 2, nw nwc ne 5-18n-7e (otd 2639 ft)... 10 2263
Peppis, Epps 1, se sw ne se 7-18n-12e 8 1680
Hughes County—
Melton et al, Jackson 1, c s½ nw ne 5-8n-10e ..... * 3507
Melton, Nealy 1, c s½ ne ne 5-8n-10e . ..... * 137
Jackson County—
Pendleton-Vaughn, Cole 2, ne se nw 3-1n-20w 6 1723
Gulf, Kelly 9, swc ne 10-1n-20w... 37 1527
J. E. Drlg. Co., Albright 1, ne nw sw 16-1n-20w ..... * 1766
Harper et al, Thompson 1, sec 5-1s-21w ..... * 3949
Kay County—
Shell, McCormack B-4, 133 ft n cw½ sw se 21-29n-1w..... * 3463
Kiowa County—
Lawson, Kimray 1, swc nw 36-5n-18w . ..... * 1604
Lincoln County—
Wilcox, School Land 7, swc se 16-14n-6e 104 3093
Southern et al, Morrow 1, se nw nw 5-15n-6e . .....¶8.7 3780
Harper et al, Shaffer 1, nwc 6-16n-2e . ..... * 5146
McClain County—
Patsy Oil Co., Caldwell 1, ne nw ne 16-5n-3e 846 3705
Okmulgee County—
Staples, Dean 2, c sw se 31-12n-13e ¶1 1148
Young, Moore 3, nw nw se ne 31-13n-14e . ..... * 1861
Shock et al, Repetto 5, 200 ft e cnl n½ nw 16-14-11e..... * 3028
Pawnee County—
Central Commercial, Rigsby 1, se ne se 17-20n-9e ..... ¶5 2523
Pontotoc County—
Continental, House 6, se nw se 12-1n-7e 1734 4659
Magnolia, Metropolitan Life 1, se sw se 22-2n-7e (otd 3858 ft) ..... * 1321
Bishop Oil Co., Simpson 5-A, 65 ft e nwc 28-2n-7e (otd 3757 ft).... 5 2686
Senora, Porter 2, se ne ne 35-5n-4e 313 2559
Superior, Summers 3, sw nw nw 36-5n-4e 321 2486
Pottawatomie County—
Tilley Drlg. Co., Mann 1, nw sw se 19-6n-5e . ..... * 3021
Smith, Hines 2, ne se ne 21-7n-4e (otd 4317 ft) 17 4078
Elko, Brister 4, sw sw nw ne 28-7n-4e 2960 4300
G & M Supply Co., Mejah 2, nw ne sw 28-7n-4e ..... * 4414
Sinclair Prairie, Deatherage 8, sw ne nw nw 28-7n-4e 396 4364
Atlantic, Ne-Tha-Pea-Se 2, nw se ne 24-11n-4e 535 4890
Seminole County—
Kimmitz, Caesar 1, ne nw nw 29-6n-6e . ..... * 3040
Helmerich & Payne, Fish 1, ne se ne 30-7n-8e 30 4138
Buell, Blankenship 1, ne se se 10-8n-5e 4 4190
Wood Oil Co., Crow 1, sec 31-8n-6e * 4622
Ligon et al, Jones 2, nw sw se 24-8n-7e 40 3335
Magnolia, Dixon-Ligon 2, ne se sw 24-8n-7e 360 3345
Hall, Troup et al, Mitchell 1-A, swc ne 35-10n-7e ..... * 3586
Stephens County—
Cities Service, Miller 1, ne nec 5-2s-8w (otd 2248 ft) ..... * 2273
Pace, Dierks 1, sw ne nw 13-2s-8w * 2152
Tulsa—
Cook et al, Horner 3-A, sec 14-17n-12e 35 1380
Wagoner—
Curtis, Ahern 1, sw se se 11-17n-18e . ..... * 962
Dawson et al, Owens 2, nwc 9-18n-16e . ..... * 628
Price, Seltzer 6, 200 ft n c e½ ne 32-18n-18e . ..... * 867

*Failures; †Junked; ¶Million cu. ft. gas.

United States Well Completions—*Continued*

Ohio

Company, Well and Location	Init. Prod. Bbls.	Depth
Cuyahoga County—		
Wm. Dempsey, Hahn 1	*	2460
Licking County—		
Earley, Lothes 4	4	700
C. A. Davis, Totus 1	¶.80	2715
J. Rubin, Staset 1	¶.11	2625
Armbruster & Strickler, Davis 3	*	678
Medina County—		
Ohio Fuel Gas Co., Wood 1	¶1.00	2480
Marine Trust Co., Shaw O7	I	364
Muskingum County—		
Gas Prod. Co. of Ohio, Bayce Hrs. 7	¶.50	4259
Perry County—		
Ohio Fuel G. Co., Rumer 1	10	3728
Stark County—		
C. W. White Co., Hyler 1	¶.10	4564
Summit County—		
Obermiller Bros., Boettler 1	¶.10	4442

"I" indicates water input well.

Pennsylvania

Bradford District—		
D. W. Daly, No 2, Bing 369	2	....
Smith Newton Oil Co., Lincoln	4	....
F. M. Boocks, fee	1	....
Duke Producing Co., Duke	1	....
Bel Oil Co., fee	7	....
Duffytown Oil Co., M. J. Sullivan	1	....
Penn Valley Crude Oil Corp., fee	2	....
Forest Oil Corp.	1	....
Forest Petroleum Corp, 2 wells	2	....
Niagara Oil Corp.	2	....
Bradford Transite Co., 10 wells	10	....
Bradford District (Water Intake Wells)		
Pine Run Oil Co., Bing 130-8-2-3-4-6 (5 wells)	...	....
N. V. V. Franchot, Tr, Campbell	...	....
Forest Oil Corp.	...	....
Niagara Oil Corp., 4 wells	...	....
Middle District—		
Franklin Trust Co., J. M. Regal	½	....
Titusville Trust Co. & Fleming Lot 3, 192	½	....
Butler-Armstrong District—		
Rohrbach et al, Seybert	4	....
New York-Pennsylvania Gas Field—		
G. L. Cabot, Clark	*	....
Williamsport Nat Gas Co., Dorr	*	....
Allegany Gas Co., Dickerson No. 2	¶	....
Belmont Quadrangle Dr Co., G. G. Bahn	*	....
Updegraff, Coyle	*	....
New Penn Dev Co., C. Ashton	*	....
Sylvania Corp., R. Baldwin	*	....
New York State Nat Gas Co., Knutila	*	....
G. L. Cabot, Morley	*	....
Penn York Gas Corp., Padden Est.	*¶	....
Belmont Quadrangle Dr Co., Heselton	¶	....
New York State Nat Gas Co., Miller Bros.	*	....
SOUTHWEST PENNSYLVANIA		
Armstrong County—		
J. C. Sefton et al, Sowers 3	¶.05	3281
Clarion County—		
David Judson et al, Summerville 1	*	1550
O. H. Culbertson et al, Bowersox 2	¶.23	1072
Greene County—		
W. L. Walters et al, Clutter 1	¶.08	1810

West Central Texas

Callahan County—		
McCord & McIntyre, McDermott 1	*	598
Comanche County—		
L. H. Choate et al, Ayers 1, sec 5	140	584
Comanche County (Wildcat)—		
Bassart et al, Kittle 1	*	720
Eastland County—		
J. L. Reeves et al, Parker 1	¶¼	3077
Jones County—		
Iron Mt. Oil Co.-Humble, Olander 6	3235	3235
Lewis Prod. Co., Muenzler 5	355	3261
Moutray Oil Co. & King, Wagley 1	*	2572
Jones County (Wildcat)—		
T. D. Humphrey et al, Hall 1	*	2737
Palo Pinto County—		
Palo Pinto O. & G. Corp., Johnson 1	*	3345
Shackelford County—		
Georgian Corp., Blach 11, sec 509	10	599
C. Midkiff et al, Green 1, sec 43	*	417
Miller et al, Godwin 1, sec 385	*	535
Roeser-Pendleton, Inc., Cook 1-B-113,	205	1568
Westexas O. & Roy. Co., Dawson-Conway 1-A, sec 193	*	1645
Shackelford County (Wildcat)—		
Roeser-Pendleton, Inc., Newell 1, sec 10	*	1938
Tarrant County (Wildcat)—		
Morris & Lucas, Wyatt 1	*	502

South Texas

CORPUS CHRISTI DISTRICT

Bee County—		
Anderson-Prichard & Bennett, Robinson 1 (WC), (West Tuleta)	*	7921
Calhoun County—		
Falcon Seaboard, Williams 2 (Heyser)	450	5492
Gonzales County—		
Sears & Dixon, Martindale 1 (WC), 3 mi ne of Slaton	*	318
Jackson County—		
Crouch, Brewer 2 (Vanderbilt)	1600	5774
Greer, Ward 3-A (West)	850	6253
Magnolia, West 42-A (West-Vanderbilt)	750	5554
West 43-A (West-Vanderbilt)	900	5125
Porter, Jackson Bank 1 (WC), 4 mi sw of Cordele field	*	3000
Skelly, Thatcher 1 (Francitas)	*	7977
Superior, Simon & Seidel 1 (Vanderbilt)	*	6321
Jim Wells County—		
Atlantic, Bankers 5 b-c-d (East Alice)	500	5373
Foster, Stacey 1 (Ben Bolt)	925	5527
Henshaw, Miguel 1 (WC), 1 mi ne of Premont field, (approx.)	*	6020
Magnolia, Elozondo 2 (Ben Bolt)	*	5443
Rowe & Delange, Wolters 1, 2 mi se of Wade City (Wade City)	*	5543
Nueces County—		
Porter, Knetig 1 (WC), 6 mi n of Luby field	*	6506
Richardson, Perkins and Legasse 13 (Saxet)	150	6761
Southern Minerals, Jolley 1 (WC), 2 mi s of Robstown	*	6103
Whitliff 1 (WC), 3 mi se of London field	*	6876
King B-14 (King-Bentonville)	350	5661
Windsor, Howze 2 (Minnie Bock)	175	3816
Refugio County—		
Quintana, Williams B-8 (Tomoconnor)	1750	5925
San Patricio County—		
Allen & Morris, Ingram 1 (East White Point)	650	5674
Battaile, Floerke 1 (Midway)	*	5362
Commercial, Dunn 3 (East White Point)	600	5651
Republic, Rachal 24 (East White Point)	725	5694
Sinclair Prairie, State 5 (East White Point)	500	5630
Southern Minerals, Peoples 2 (1), (McCampbell)	400	7159
Sparks 1 (WC), 9 mi n of Edroy (St. Paul)	*	6015
Victoria County—		
Gulf, Traylor B-29 (Heyser)	375	5491

LAREDO DISTRICT

Duval County —		
Andrus, Peters 2 (Rancho Solo)	6	1873
Continental, Driscoll 44-A (Driscoll)	500	3371
Hiawatha, Herberger A-1 (WC), section 14	150	5873
Magnolia, Duval County 20 (189), (Cedro Hill)	40	1451
A. Well 8 (113) (Hoffman)	*	3129
Plymouth, Hoffman 1-C (Taranchua)	225	2040
Jim Hogg County —		
Great States, Martinez 1-B (Colorado)	350	3007
Starr County—		
Humble, McGill 45 (Kelsey)	500	4734
McGill 46 (Kelsey)	500	4756
Sun, Speer 6 (Sun)	400	4969
Webb County—		
Amsco, Vasquez 1 (WC), 6 mi nw of Bruni	*	loc.
Anselma, Adami 1 (WC), 4 mi s of Adami field	*	1344
Glenda, Adami 3 (Adami)	45	990
Magnolia, Volpe-Benavides 20 (Volpe)	180	2466
Schimmel, Benavides A-5 (Volpe)	40	2373
Tidewater, Bruni 7 (Cole Bruni)	¶3 & 25	8959
Zapata County—		
Buffalo, Hinnant 23-C (Mirando Valley)	104	2010
Dulup, Garcia 4, Fansler Petition Comitas Grant	*	1223
Interstate, Lopez 30 (Mirando Valley)	265	1785
Mathis, Martinez 36 (Charco Redondo)	*	3010
Texas, Whitehead 131 (Escobas)	25	1250

SAN ANTONIO DISTRICT

Bexar County—		
Beaucamp & Wilson, Brown 1 (WC), s end of county	*	loc.
Guadalupe County)—		
J. E. West, Lentz 2 (Elm Creek)	10	769
Weyel, Thomas 1 (Elm Creek)	10	793
Kimble County—		
Bierschwale, Fee 1 (WC), survey No. 366	*	1080
Sutton County—		
Holland, Leidecker & Webb, Allison Ranch 1 (WC), section 44	*	880
Travis County—		
Gray, Stark Washington 1 (WC), 10 mi e of Austin	*	1703
Val Verde County—		
Joiner, Sellers 1 (WC), 18 mi nw of Del Rio	*	465

Texas Gulf Coast

Anahuac—		
Gulf, Blanke C-3	171	7162
Humble, Gripon 22	597	7112
Caplen—		
Sun, Zinn & Forman 2	137	7556
Fannett—		
Gulf, Bordages 2	845	8296
Hastings—		
Stanolind, Ware 8	570	6110
Hull—		
Houston Prod. Co., Texas Co. 4	205	5318
Joe's Lake—		
Republic, Fee 31	401	7714
Louise—		
Burwayn Oil Co., Weaver 2	*	5183
Lovall Lake—		
Stanolind, Steinhagen A-2	72	7818
Markham—		
Red Bank Oil Co., Smith 2	40	1267
Martha—		
Stanolind, Seaberg 4	*	8379
Old Ocean—		
Stanolind, Giles 1	601	10,600
Sun Oil Co., Borsodie 3	530	10,520
Pierce Junction—		
Gulf, Taylor 44	*	6446
Sour Lake—		
Red Bank, Hardin Oil Co. 1	109	1006
Spanish Camp—		
Houston Oil Co., Huelling 1	¶10	3198
Turtle Bay—		
Stanolind, Hill 1	146	6631
Withers—		
Texas Co., Pierce Estate B-47	95	5547
Ft. Bend County—		
Magnolia, Huntington 1, Rosenberg area, H. Scott Lge	*	8698

West Texas

Andrews County (Means)—		
Humble, J. S. Means 73	1154	4510
Crane County (Jordan)—		
Kewanee Oil Co., University 4-B	1531	3639
Concho County (Wildcat)—		
J. W. Westbrook et al, Jim Rice 1	*	1203
Crockett County (Todd)—		
Continental et al, Todd 2-29	†	470
Todd 1-30	*	7010
Todd 1-32	*	1510
Ector County (Foster)—		
Arrow Drl. Co. et al, Johnson-I.T. I.O. 1	645	4204
M. B. K. Drl. Co. et al, Gist 2-C	1009	4320
Midland Drl. Co., Henderson-Humble 3	1888	4290
Stanolind, E. F. Cowden 39-B	1126	4240
J. E. Witcher 31	2085	4195
Ector County (Goldsmith)—		
Eastland Oil Co., Cummins 4	839	4200
Gulf, Goldsmith 240	72	4191
Phillips-Pure, Cowden 66	3902	4168
Clyde Cowden 70	376	4161
Ector County (Jordan) —		
Snowden-McSweeney, University 1, lse 2	1024	3580
Gaines County (Seminole)—		
Humble & T. P. C. & O. Co., Hahn 2	601	5270
Gaines County (Wasson)—		
Continental, Moore 3-46	983	4998
Hockley County (Slaughter)—		
Awoeb Oil Co. (was Harrison-Bond), Davis 1	772	4985
Honolulu Oil Corp., Mallet 2-4-52	814	5040
Stanolind, Slaughter 6-A	1079	5040
Slaughter 6-B	889	5020
Pecos County (Fromme)—		
E. G. Rodman et al, Gregg-Humble 1	10	1450
Pecos County (Pecos Valley)—		
Stanfield & A. C. Walker, A. Reed 1	20	1680
Pecos County (White-Baker)—		
Cardinal Oil Co., White-Baker 5-B-45	72	1743
Ward County—		
Gulf, Hutchings 135	1195	2738
Winkler County (Halley)—		
Skelly, Halley 36	65	2810
Upton County (McCamey)—		
Harvey-Sergent-Rutter, Cordova Union-Texaco 8	396	2323
Yoakum County (Wasson)—		
Aloco Oil Co., Greer-Texaco 4	1156	5219
Ann Miller-Texaco 8-A	1166	5154
W. O. Moore,-Texaco 1	918	5240
Basin States Oil Co., Jordan-Honolulu 1	508	5210
Don Danvers et al, Anderson-Ohio 2	593	5230

*Failures; †Junked; ¶Million cu. ft. gas.

United States Well Completions—*Continued*

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Continental, Wilson-McCrory 6	1536	4347
Wilson-McCrory 7, sec 28	1776	4352
Phillips, Little 1	1608	4363
Texas Co., Wilson 36-A, sec 29	582	4395
Archer County—		
King Oil Co., Rogers 12	*	1350
Archer County (Wildcat)—		
Young & Woody, B. D. Ikard 1	*	1026
Cooke County—		
Bridwell Oil Co., Flusche 2-B	17	810
Dickson Oil Co., S. A. Lynn 1	144	1113
S. A. Lynn 2	114	1109
S. A. Lynn 3	127	1100
Cooke County (Walnut Bend)—		
Sinclair Prairie, J. M. Best 16	519	4982
Percy McGeorge 6	969	4944
Denton County (Bolivar)—		
Jones Drl. Co.-D. S. Hager, Armstrong 1	17	1632
Jack County—		
Champlin-Bass & Wilson, Winn 2	280	3263
Harper Pet. Corp., Vanhooser 2	*	2052
Montague County (Wildcat)—		
Texas Co., P. J. Martin 1	*	3624
Wichita County (K-M-A)—		
Consolidated Oil Co., Barnes 4-A	312	3989
Fain-McGaha Oil Corp., Tidwell 2	1048	3830
Palmer & Chenault, Inc., Waggoner Bros.-Gulf 4	600	4172
Sunray Oil Co., Denny 3	866	3855
Tidewater Associated et al, Ferguson 16	1216	3849
Wichita County—		
Bell O&G Co., Evans 10-B	10	1278
Geo. Proctor et al, Foster 46-A, sec 1	10	2003
Underwood Oil Co., Rogers 8	118	1207
Young County—		
Long & Ray Oil Co., Bills 2, sec 1971	420	2778
Trentman & Nunnelee, Brashear 2, sec 1974	50	2793
Young County (Wildcat)—		
A. P. Nicholson et al, W. W. Gregg 1	*	580
P. B. Worthington et al, Larimore 1, sec 201	*	886

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Hunt Oil Co., Bradford 5-E (42.84-ac)	385	3652
Transco Oil Co. (was Trippett), Keeling 10 (22¾-ac)	2400	3724
Kilgore Area—		
T. P. Looney et al, M. Strong 2 (6.56-ac)	1040	3630
Sinclair Prairie, King 59-B, Tr. 1 (337.6-ac)	2500	3501
Longview Area—		
Atlantic-J. K. Wadley, Bander 15 (84.69-ac)	7000	3747
Guiberson Oil Co., Stuckey-Thrasher 11 (40-ac)	6500	3583
Johnson & Mercer, W. H. Reed 3 (24.36-ac)	240	3671
Houston County (Navarro Crossing)—		
Humble, Jim Burns 4	100	5857

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
The Texas Co., E. Cooper 8	479	3200
Gray County—		
Bell O&G Co., Morse 6	500	2568
Gulf Oil Corp., Merten 2	373	3280
Kewanee Oil Co., Morse 2-E	348	2706
Magnolia, E. Haggard 15	320	3300
Skelly, McKay 2	¶20	2750
H. Schafer 103	373	3291
C. M. Smith et al, Gorenflo 1-B	¶16	2587
Hutchinson County—		
Kewanee Oil Co., Lewis 41	253	3005
Texas Co., R. L. Pond 16	408	3090
Moore County—		
Phillips, Spurlock (Spur) 1	¶29	3200

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Niobrara County (Lance Creek Field)—		
A. B. Cobb, Novick 5, ne nw 6-35n-65w	*	5601
Continental Oil Co., Sam Joss 6, cnw sw ne 6-35n-65w	720	5275
Sublette County (LaBarge Field)—		
Marvel Oil Co., 1-G, ne ne se 28-27n-113w	8	1040

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Boone County—		
Pond Fork O&G Co., Fee 15	2	2701
Clay County—		
Pittsburgh & W. Va. G. Co., Caldwell 7643	¶28	1722
Ashley 7707	*	2024
Kanawha County—		
Columbia Carbon Co., Jones	¶35	3539
Godfrey L. Cabot, Lafollette 1	¶35	4380
Marshall County—		
A. L. Phillips et al, McGinnis 1	*	1830
G. B. & A. C. Patterson, McClelland 2	¶06	1790
Ritchie County—		
W. Va. Investment Co., Parks 24	30	2041
F. A. Deem & T. J. Davis, Hatfield 1	¶25	2000
Hope Nat. Gas Co., Gainer 7421	*	1924
Upshur County—		
Union Gas Corp., Cunningham 1	¶04	4286
Wayne County—		
Chartiers Oil Co., Thompson 2	6	1998
Wirt County—		
W. C. Patterson, Fee 2	2	700

Ask 100-barrel allowable for Colgan, Archer County, Texas

Shell Oil Company has requested allowables of 100 barrels daily for wells in the Colgan pool, Archer County. R. H. Gwinner, company engineer, said production is from a 10- to 13-foot saturated section of Swastika sand at 1460 feet from which 40-gravity oil is produced. There are 5 producing wells in the field, which has not yet been defined on the west. About 15 more wells are expected. Testimony indicated that all wells might not be able to make the full 100-barrel allowance. Spacing in the field is 1 well to 5 acres.

B-M-W Equipment
assures MAXIMUM ECONOMY

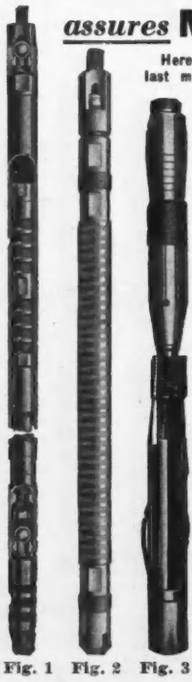


Fig. 1 Fig. 2 Fig. 3

Here are three B-M-W Products that we couldn't show last month: Fig. 1—the ADMORE Liner Barrel; Fig. 3—the ADMORE Insert Pump Anchor; and Fig. 4—the NEILSON Safety Sucker Rod Elevator. We are repeating Fig. 2—our recently announced NU-TEX Valve which is now "going over" so well.

Other leading B-M-W Products—all obtainable at supply stores—are: FLUID-LIFTER Pumps; NEILSON Safety Sucker Rod Hooks, Tubing Hooks, Sucker Rod Sockets, etc.; BALLS and SEATS made for every pumping service, including the new TOWER TYPE Ball and Seat and the 2-WAY NON-MAGNETIC Crown; TEX-TYPE Plunger Fittings and Valves; COLLINS Belt Clamps; and our recently developed NU-TEX Pumps. All are described in the latest Composite Catalog. For complete data write us direct.

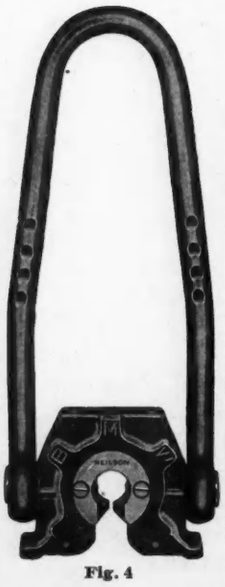


Fig. 4

BRADFORD MOTOR WORKS INC
OIL WELL SUPPLIES
BRADFORD, PA. — TULSA, OKLA.

STOP AT "A GREAT HOTEL"
1 block from Penn Station and Empire State Building
B. & O. buses stop at our door
LARGE, BEAUTIFUL ROOMS WITH PRIVATE BATHS
Single from $3 daily • Double from $4.50 daily
HOTEL McALPIN
BROADWAY at 34th ST., NEW YORK
Under KNOTT Management John J. Woelfle, Manager

WILDCAT REPORT
New Starts and Completions

ARKANSAS

COMPLETION

Columbia County—Gulf Ref. Co.'s George Lewis 1, sw ne 12-18-23, salt water, abnd 9065 ft in Smackover lime.

ILLINOIS

FIRST REPORTS

Clinton County—Santa Fe Petroleum Co.'s George Vandelov 1, ne nw ne 8-1n-3w, rig for Devonian test.

Crawford County—Seger et al's Steward 1, ne ne ne 27-6n-11w, moving in material for Devonian test. H. R. Snaveley's Steve Freeman 1, nw 4-8n-11w, rig.

Gallatin County—Ralph Holbert's Osborn 1, se se ne 29-28s-10e, rig. D. E. Colebeck's Egyptian Tie & Timber Co. 1, sw nw ne 19-8s-10e, spud.

Jackson County—W. R. Davis' Michels 1, ne nw nw 18-9s-3w, sp.

Lawrence County—J. L. Williams' M. Smith 1, nw nw sw 29-5n-12w, lcn.

Wabash County—Bruce & Lacey's Kerritt 1, se 19-1s-12w, dk.

White County—Kingwood Oil Co.'s Wilson 1, nw nw se 6-6s-7e, dk. Rheinsmith et al's McCarty 1, nw sw ne 7-6s-10e, dk.

COMPLETIONS

Coles County—Coder's Horsley Heirs 1, se nw ne 31-12n-10e, Hutton tnp, abnd 1280 ft.

Edwards County—Whisenant & Trenchard's Durk 1, ne se se 36-2s-10e, Dixon tnp, top McClosky 3184 ft, abnd 3275 ft.

Gallatin County—Kingwood Oil Co.'s Robinson 1, c ne nw nw 4-8s-8e, North Fork tnp, drilled through dry Cypress and McClosky and into St. Louis, abnd 2910 ft. J. C. Ingram et al's Beverly-Turns 1, ne ne ne 19-9s-8e, Gold Hill tnp, abnd after spudding. Egyptian Tie & Timber Co.'s Fee 2, nw ne sw 15-8s-10e, New Haven tnp, abnd 241 ft

St. Clair—Joe Longoria et al's J. Scholler 1, nw ne nw 10-3s-7w, Lenzburg tnp, abnd 1704 ft.

Saline County—Simon Henry et al's Seten 1, c sw sw se 1-8s-7e, Eldorado tnp, top McClosky 2905 ft, abnd 2919 ft.

Wabash County—Parsons et al's Baumpgard 1, nw ne se 1-1s-13w, Mt. Carmel tnp, abnd loc. Sowell & Ford's L. E. Meyer 1, se sw sw 4-1s-13w, Link Prairie tnp, abnd loc. U. S. Oil Co.'s J. H. Stillwell 1, sw nw se 7-1n-11w, Wabash tnp, abnd loc. A. M. Lacy's Holsen 1, ne ne se 27-1n-12w, Wabash tnp, abnd loc.

INDIANA

FIRST REPORTS

Martin County—Norris & Gilmore and Newton Pipeline Company's Clinton B. Tharp 1, sw sw sw 26-3n-4w, Center tnp, sp.

Vandenburgh County—Charles Steel et al's Rosencranz 1, nwc 18-7s-11w, dr.

COMPLETION

Knox County—H. M. Horton, P. N. Wiggins et al's D. A. Upham A-1, 1335 ft from north lines and 330 ft from e line, ne 3-1s-12w, Decker tnp, top McClosky 2313 ft, abnd 2415 ft.

KANSAS

FIRST REPORTS

Cowley County—Atlantic Refining Co. et al's Smith 1, sec nw 33-33-4e, rig.

Greenwood County—Sheedy et al's Hook 1, nwc 4-22-10e, sd 760 ft.

Reno County—Shell Oil Co.'s Frazee 1, ne se ne 33-25-8w, pits.

Sedgwick County—Fuller et al's Stilt 1, csl se ne 21-27-1w, rig.

COMPLETION

McPherson County—Westgate-Greenland Oil Co.'s Chindberg 1, c n½ ne se 18-18-1w, 4 mi nw Canton pool, top Mississippi 2763 ft, td 2794 ft, dd to 2808 ft, pumped 33 bbls oil and 100 bbls water in 12 hours, water increased, abnd.

NORTH LOUISIANA

COMPLETION

Bossier Parish—J. K. Wadley et al, Vance Estate 1, 1739 ft n and 277 ft e swc 4-19n-13w, elev 196 ft, top Nacatoch 1047 ft, top Saratoga chalk 1414 ft, top Blossom (Ozan) 2144 ft, top red beds 2606 ft, abnd 2690 ft.

SOUTH LOUISIANA

COMPLETION

Allen Parish—Phillips Pet. Co.'s Industrial Lbr. Co. 1, Ten Mile area, 466 ft n and e of swc 1-4s-5w, top Wilcox 10,285 ft, abnd 10,305 ft.

MICHIGAN

FIRST REPORTS

Calhoun County — Transwestern Oil Co.'s Bole 1, se se nw 13-3s-8w, Leroy Township, dr.

Genesee County—Lewis Burr's Hermann 1, sw sw nw 13-6n-5e, Gaines Township, lcn.

Ottawa County—James E. Flannigan's Gillhespy 1, nw ne nw 8-9n-13w, rig.

COMPLETIONS

Allegan County—Red-Man Oil Co.'s Hibma 1, nw sw ne 4-4n-12w, Dorr Township, Traverse 1671 ft, so 1680 ft, abnd 1701 ft.

Kent County—Smith Petroleum Co.'s Wingeier 1, se sw 11-5n-9w, Bowne Township, abnd 714 ft.

Monroe County—Bralley Oil Synd.'s Ault Bros. 1, nw sw nw 11-7s-6e, Summerfield Township, Trenton 1957 ft, so 2100 ft, abnd 2250 ft.

MISSOURI

COMPLETIONS

Buchanan County—Miller et al's Carrough 1, c se se 24-57n-35w, 2 mi e St. Joseph, top Viola 1982 ft, top St. Peter 2181 ft, top Arbuckle 2245 ft, hfw 2291-96 ft, td 2307 ft, abnd.

Platte County—Bradford et al's Renner 1, nw ne sw 5-50n-33w, 2 mi ne Wellborn gas pool, top Squirrel 383 ft, top Bartlesville 540 ft, td 541 ft, abnd.

NEW MEXICO

FIRST REPORT

Eddy County—Everst & Moran's Ramuz 1, c ne nw 18-23s-26e, elev 3417 ft, sp and sd.

COMPLETION

Luna County—O. D. Berry et al's Berry 1, 200 ft from s and 2370 ft from w lines 33-22s-10w, junked 1075 ft.

NEW YORK

FIRST REPORT

Chemung County — Belmont Quadrangle Drilling Co.'s Consolidated Brick Co. 1, sec F, Elmire quadrangle, Elmire tnp, lcn.

OKLAHOMA

FIRST REPORTS

Lincoln County—Harper et al's Mann 1, nwc se 23-14n-5e, pits.

Okfuskee County—Welch's Walker 1, nw sw sw 6-13n-10e, mict.

COMPLETIONS

Cleveland County—Sinclair Prairie Oil Co.'s Ward 1, sec 30-7n-1e, 6 mi e Lexington, top Viola 6408 ft, top second Wilcox 6802 ft, top Arbuckle 7700 ft, td 8322 ft, pb 6225 ft, abnd hfw 5445-60 ft.

Creek County—Kaplan et al's Anthis 1, nwc se 12-15n-9e, Bristow-Slick area, top Dutcher 2827 ft, top Mississippi 2994 ft, top first Wilcox 3400 ft, abnd 3406 ft.

Pawnee County—Atkinson's Wilkerson 1, nw ne nw 14-22n-4e, 6 mi s Masham pool, top Mississippi 3614 ft, abnd 3620 ft.

PENNSYLVANIA

FIRST REPORTS

Beaver County—John T. Galey et al's J. Tennis 1, South Beaver tnp, to deepen former Oriskany sand producer from 4613 ft to Clinton sand, expected at 6500 ft.

McKean County—Benedum-Trees' Williams & Mallory 1, Corydon tnp, Warrant 3705, dr Oriskany test.

EAST TEXAS

FIRST REPORT

Shelby County — Superior Oil Corp. (of Tulsa), Pickering Lbr. Co. 1, 990 ft e and 330 ft n swc W. J. Crane sur, materials.

NORTH TEXAS

FIRST REPORTS

Archer County—C. W. Clark et al's J. M. McCarty 1, 330 ft out of nwc Chas. C. Brown sur No. 21, A-20, lcn for 5200-ft test. E. F. Scott et al's B. H. York 1, 150 ft out of sec w½ sec 1861, TE&L survey, lcn for 1000-ft test.

Clay County—Apache Oil Co.'s W. A. Henderson 1, 2200 ft e and 3900 ft s of nwc S. Hernandez sur A-185, lcn for 1250-ft test.

Cooke County—Big Indian Oil & Dev. Co.'s T. McFadden 1, 700 ft e thence 400 ft n of se cor N. A. Whitney tract, but on McFadden 40-acre tract in E. T. Ry. sec 1, A-365, lcn.

Young County—F. T. Conner et al's J. B. Foster 1, 660 ft out of swc sec 284, TE&L sur, lcn for 4000-ft test.

Archer County—W. T. Hutcheson, Jr. et al's Claude Deskin 1, 830 ft from n and 2072 ft from w lines sec 10, blk 5, Clark & Plumb sur, 3 mi e and s of Archer City, lcn for 1200-ft test.

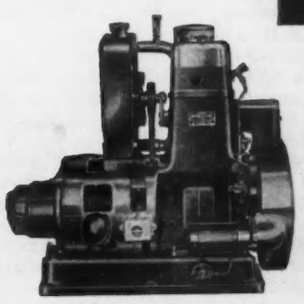
COMPLETIONS

Archer County—Young & Woody's B. D. Ikard 1, 900 ft from s and 150 ft from e lines

Only 1¢ a Kilowatt Pays for Your POWER and LIGHT WHEN YOU HAVE

The WITTE is quality built to stand the gaff and to operate without constant supervision. Operates on cheap, non-explosive fuel—reduces fire hazards. Gives you a smooth flow of electricity—and you pay only for current you produce and use. Easily started and operated by practically any employee. 1500 to 8000 watts — Vertical and Horizontal. Manual control, automatic or electric starting. $825 and up, f.o.b. Kansas City, Mo.

WITTE DIESELECTRIC PLANTS



JUST PUSH A BUTTON and the Witte does the rest. You can have this convenient finger-tip control remote or at engine.

SEE YOUR SUPPLY DEALER at once — or write us for complete information.

WITTE ENGINE WORKS
1962 Oakland Ave. Kansas City, Mo.

One of These Outstanding DIESELS

Stop and figure what you will save with a WITTE Dieselectric Plant producing the light and power you need at less than ONE CENT a K.W.H. And you can always depend on a WITTE for efficient service that makes you independent of high lines wherever you set your rig.

sec 3, blk 5, Clark-Plumb sur, Gunsight lime 926-34 ft, abnd 1026 ft.

Montague County—The Texas Co.'s P. J. Martin 1, 990 ft from s and 2734 ft from w lines C. A. Barnes sur A-48, top granite wash 3581 ft, top granite 3603 ft, abnd 3624 ft.

Young County—A. P. Nicholson et al's W. W. Gregg 1, 150 ft out of nec of south 80 acres of J. J. Cantwell sur A-1586, abnd 580 ft. Paul B. Worthington et al's E. J. Larimore 1, 450 ft from s and 1777 ft from e lines of north 127½ acres TE&L Co. sec 201, abnd 886 ft.

William M. Barret, Inc.

Consulting Geophysicists

Specializing in Magnetic Surveys

Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.

GIDDENS-LANE BUILDING
SHREVEPORT, LOUISIANA

THE FORT WORTH LABORATORIES

Analysis of oil field brines, cores, gas, oil, and minerals. Field gas testing. R. H. Fash, Vice-President; Long Distance 138. 828½ Monroe Street, Fort Worth, Texas.

JACK A. SCHLEY

Patent Attorney

(Established 1902)

PATENTS—INFRINGEMENTS—OPINIONS

San Antonio—Washington, D. C.

906 SECOND NAT'L BANK BLDG. — HOUSTON

1807-11 TOWER PETROLEUM BLDG. — DALLAS

PATENTS

Patents, Trade Marks, Copyrights and Infringement Litigation

HARDWAY & CATHEY

428-29-30 Bankers Mortgage Bldg.

Phone Capitol 9756 Houston, Texas

HOUSTON LABORATORIES

Analytical and Consulting Chemist

Podbielniak Gas Analysis

Oil Field Brines, Waters and Cores

Complete Evaluation of Crude Oils

Long Distance 267, Box 132, Houston, Texas

HOARD EXPLORATION CO.

Seismic Surveys

Estimates promptly furnished

Mississippi Branch Office

Heidelberg Hotel . . . Jackson

WELL LOGS. Drillers' logs of approximately 4,000 wells drilled in New Mexico are available from Well Log Division, New Mexico Bureau of Mines & Mineral Resources, Socorro, New Mexico. Write for price list A.

PETROLEUM ENGINEER WANTED—Recent graduate with oil producing lease experience for position as draftsman and later repressuring field man. Give age, education, detailed experience, picture, salary expected, and references. Address Box 334, The Oil Weekly, Houston, Texas.

TEXAS GULF COAST

FIRST REPORTS

Brazoria County—S. E. W. Oil Corp.'s L. P. Van Werder 1, nw of Manvel, 160-ac tr, AC H&B sur, lcn.

Wharton County—Strake's Poole 1, Lissie area, GH&H sec 25, lcn. O. G. Garvey's Stockton 1, and Menefee et al 1, S. P. Middleton sur, n of Louise, locations.

COMPLETIONS

Ft. Bend County—Magnolia's Huntington 1, n of Rosenberg field, 500-ac tract, H. Scott sur, abnd 8035 ft.

SOUTH TEXAS

FIRST REPORTS

Bexar County—Philtop Oil & Gas Co.'s Patton 2, 300 ft nw of No. 1-A in 1600-acre tract, E. Rodriguez grant, loc. Dr. L. L. Shaggs', Braubock 2, 160 ft from w line, 250-acre tract, Rodriguez survey No. 16, Connie blk 4002, 2000 ft s No. 1, 5 mi s of San Antonio, loc.

Duval County—Porter & Blanchard et al's Rogers 1, 2163 ft from n line, 330 ft from e line of sur No. 273, 1 mi sw Fitzsimmons field, loc. Standard of Texas' Rodriguez 1, 2218 ft s line, 1490 ft w line of 369-acre tract, San Pedro de Charco Redondo grant, Sejita field, loc. J. H. Turner's Warden & Drought 1, 220 ft s line and 220 ft e line of n½ of nw¼ of Juan L. Sawn sur No. 154, 2 mi nw of Charamousca, rigging up.

Guadalupe County — Diamond Half Oil Corp.'s Strey 1, 160-acre tract, J. de los Cartinas grant, 2½ mile ne of Elm Creek, spudded.

Jim Hogg County—Sun's East 2, nw sec 39, AB&M survey, 6 mi e Randado, loc. Titanic Oil Corp.'s Gutierrez 1, blk 2, Mayfair subd, G. Gutierrez sur No. 163, El Peyote grant, loc.

Jim Wells County—Arkansas Fuel Oil Co.'s Brand 1, 100.76 acre lease J. Poitevent sur No. 4, 2 mi s of Wade City, spudded. Rodney Delange's McNeil 1-A, 330 ft s line, 1540 ft w line of lease, Casa Blanca grant, loc. Reese & Dunn et al's Perez 1, lot 13, section 6-E Cushing subd in La Tinaja de Lara grant, 2 mi nw of Alice, loc.

Kimble County—Auld, Schwab & Carlisle's Nane 1, J. C. Stisser survey No. 417, 7 mi nw Junction, loc.

Live Oak County—W. R. Quinn and E. J. Biscamp's Bodo & Paula 1, 401.5 acre tract, Joseph F. Houzer survey No. 31, n corner of county, spudded.

Zapata County—S. H. Graham's Garza 1, s½ blk 2, share 1, survey No. 161, 3 mi ne Escobas, loc.

COMPLETIONS

Bee County—Anderson-Prichard Oil Corp. and Mills Bennett Production Co.'s Robinson 1, West Tuleta area, Section 6, abnd 7921 ft.

Bexar County—Beaucamp & Wilson's Brown 1, south end of county, survey No. 1, loc abnd.

Gonzales County—H. F. Sears and J. L. Dixon's Martindale Mortgage Co. 1, 3 mi ne Slaton, abnd 318 ft.

Jackson County — H. F. Porter's Jackson County Bank 1, 4 mi sw of Cordele field, abnd 3000 ft.

Jim Wells County—Henshaw Bros.' Miguel 1, 1 mi ne Premont field, abnd 6020 ft. Republic Natural Gas Co.'s Adams 1-C, 1 mi nw Alfred production, abnd 5208 ft. W. E. Rowe et al's Wolters 1, 2 mi se Wade City, abnd 5543 ft. Rodney Delange's McNiel 2, 1320 ft s of No. 1, loc abnd.

Kimble County—A. L. Bierschwale's Fee 1 survey 366 and in 4323-acre tract, abnd 1080 ft.

Nueces County—H. J. Porter's Knetig 1, 3 mi sw Baldwin field, abnd 6506 ft. Southern Minerals Corp.'s Whitliff 1, 3 mi se London, abnd 6876 ft. Southern Minerals Corp.'s Jolley 1, 2 mi s Robstown, abnd 6103 ft.

San Patricio County — Southern Minerals Corp.'s Sparks 1, 9 mi n Edroy, St. Paul area, abnd 6015 ft.

Travis County—J. H. Gray's Washington 1, in 615-acre tract, 592 ft nw line of tract, 10 mi e of Austin, abnd in Edwards, 1703 ft.

Webb County—Amsco Prod. Co.'s Vasquez 1, 6 mi nw of Bruni, loc abnd. Anselma Oil Co. et al's Adami 1, 4 mi s Adami, abnd 1344 ft.

WEST TEXAS

FIRST REPORTS

Tom Green County—B. C. Mann et al's J. D. Funk & Wall 1, ne nw ne H&TC sec 32, blk 5, cem sur pipe.

Lynn County—H. F. Wilcox O&G Co.'s E. L. Powell 1, nw sw sw E. L. Ry. sec 134, blk 12, rur.

COMPLETIONS

Concho County—John W. Westbrook et al's Jim Rice 1, sw sw sw T&NO sec 18, A-1413, elev 1920 ft, abnd 1203 ft.

WEST CENTRAL TEXAS

COMPLETIONS

Comanche County—Bossart et al's Kittle 1, T. J. Bonner sur A-105, abnd 720 ft.

Jones County—Thos. D. Humphrey et al's H. C. Hall, Jr. 1, 2480 ft from s and 330 ft from e lines T&P sec 1, blk 17, elev 1664 ft, trace oil 2302-05 ft, abnd 2737 ft.

Shackelford County — Roeser Pendleton, Inc.'s W. P. Newell 1, T&P sec 10, blk 12, trace oil 1602-1607 ft, abnd 1938 ft.

Tarrant County—Morris & Lucas' Wyatt 1, W. H. Curry sur, Pat. No. 3-4811, abnd 502 ft.

Venezuela Representative Proposes Building at Tulsa Show

Possibility of erecting a Venezuelan government building on the grounds of the International Petroleum Exposition in Tulsa before the May 18 to 25, 1940, show, was the subject of discussion between Dr. Carlos Perez de la Cova, administrative head of the petroleum department of the ministry of fomento for the South American country, and W. G. Skelly, president of the exposition during a conference in Tulsa recently.

Cova, who was accompanied by J. Martorano, of the Venezuelan petroleum department, said that he was sending a recommendation back to his government following the discussion of available space.

This was the third delegation to visit Tulsa in advance to plan exhibits; Italy and Mexico have previously sent representatives.

The largest foreign attendance in the history of the exposition will be a 1940 record, it is expected by exposition officials. Rumania, Turkey, Canada, Great Britain, Itay, Mexico, Venezuela, and Greece have indicated they are sending delegates.

An A.A.P.G. Book (1939)

Recent Marine Sediments

A SYMPOSIUM OF 34 PAPERS BY 31 AUTHORS

Edited by PARKER D. TRASK
U. S. Geological Survey, Washington, D. C.

Prepared under the Direction of a Sub-Committee of the Committee of Sedimentation of the Division of Geology and Geography of the National Research Council, Washington, D. C.

Carl W. Correns, Stina Gripenberg, W. C. Krumbein, Ph. H. Kuenen, Otto Pratje, Roger Revelle, F. P. Shepard, H. C. Stetson, Parker D. Trask, Chairman

This book is on the topic of Sedimentation and Environment of Deposition recently voted No. 1 in geological research of most importance to the progress of petroleum geology—in a poll of the 3,000 A.A.P.G. members and associates, conducted by the Research Committee. Throughout the book, the basic data — observational facts — are emphasized rather than speculative inferences.

- 736 pages; 139 figures
- Bibliographies of 1,000 titles; 72 pages of author, citation, and subject index
- Bound in blue cloth; gold stamped; paper jacket; 6 x 9 inches

PRICE: $5.00, POSTPAID

($4.00 to A.A.P.G. Members and Associate Members, Libraries and Colleges)

THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Box 979, Tulsa, Okla., U. S. A.

NOTES FOR THE Equipment Buyer and User

Combination Hook

REGAN FORGE & ENGINEERING COMPANY

An improved combination hook is announced by Regan Forge & Engineering Company, P. O. Box 150, San Pedro, California. It is available for 300-ton capacity and can also be ordered for 100- and 200-ton capacities. This hook embodies two separate load-carrying elements. The large lower hook carries the swivel bail and the two smaller hook elements formed by the cross yoke carry the elevator links. The cross yoke is slidably mounted within an aperture of the main hook. This hook can be locked in any of four positions. It has a safety lock. When the latch on the lower hook is in open position it hangs at a convenient angle and readily engages the swivel bail, the weight of which automatically closes and locks the latch in the closed position. This hook is cast of alloy steel, heat-treated to produce maximum physical properties, and is tested to one and one half times the rated safe load. The overall height of the 300-ton hook is 120 inches.

Regan Combination Hook

Diesel Tractor

CATERPILLAR TRACTOR COMPANY

Caterpillar Tractor Company, Peoria, Illinois, has announced a new 75-drawbar horsepower Diesel D7 Tractor, engineered specifically to increase production and lower operating costs.

By adding features which lessen the energy expended by the operator, the company says, "Caterpillar" enables the driver to get the greatest amount of work out of the new machine. By improving the design and construction as a whole, the tractor is given longer life and a lowering of upkeep costs.

To reduce operator fatigue, the new D7 tractor has "finger tip" steering. A light pull on the steering clutch lever is sufficient to steer the 23,500-pound machine. Actually, the only work done by the operator is the opening of a valve, as the steering clutches are operated hydraulically by a separate control unit driven from the upper transmission shaft. This low effort steering helps the operator to keep alert during his entire shift.

A streamlined hood and a driver's seat located high and well forward on the tractor, give a clear view of the work ahead and behind, eliminating the need for neck stretching and leaning, which causes unnecessary fatigue.

A restful and durable seat has been provided. It is wide so the operator can change positions, thereby further adding to his comfort. Small seats on both the left and right hand arms of the main seat provide a comfortable place from which the driver can operate rear-power-controlled equipment.

In order to obtain the greatest possible strength and at the same time keep weight within the correct limits, welded steel construction is used extensively. The frame and steering clutch case are of this construction, and are built into a one-piece unit.

The durability of gears, steering clutches and flywheel clutch has also been increased. Metallic facings for flywheel and steering clutches assure long life and freedom from adjustment.

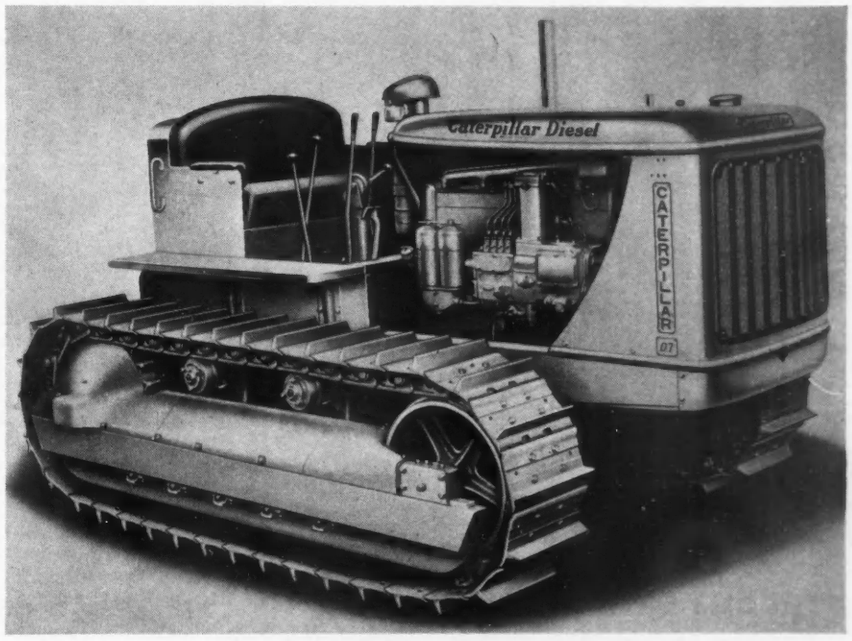
The new D7 Tractor is powered by a heavy-duty, four-cylinder, valve-in-head, "Caterpillar" Diesel engine. It has a bore and stroke of 5¾ x 8 inches, and a full load governed r.p.m. of 1000. Belt horsepower is 87; drawbar, 75.

Rugged construction, effective sealing against dirt, freedom from operating adjustments, a lubricating oil cooler, statically and dynamically balanced five-main-bearing crankshaft, quick-acting governor; accessibility and the ability to successfully burn a wide range of Diesel fuels are a few of the features which enable it to perform smoothly, dependably and economically.

To provide a broad range of speeds and therefore permit the most profitable use on a wide variety of work, the new D7 tractor is regularly equipped with either of two 5-speed transmissions.

The low-speed transmission provides 5 forward speeds ranging from 1.4 to 5.00, while the high-speed transmission has speeds from 1.4 to 6.00 miles per hour.

For each of the first 4 forward speeds, there is a corresponding but slightly higher reverse. This is obtained by means of a quick reverse shifting lever, which works independently of the change speed shifting lever. It is possible to change from any of the first four speeds to the corresponding reverse speed by merely pushing forward on one lever, the flywheel clutch having been first disengaged. This feature is particularly advantageous in bulldozing.



Caterpillar Diesel D7 Tractor

Replaceable Piston Rod

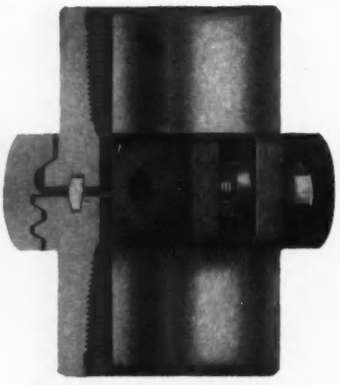
REGAN FORGE & ENGINEERING COMPANY

Regan Forge & Engineering Company, San Pedro, California, has developed a sleeve type piston rod, providing the use of a sleeve around the rod. Instead of wear being imposed on the rod proper, the wear occurs upon the sleeve, which is a cheaper element and can be economically replaced. The entire assembly consists of a rod, wear sleeve, universal sealing ring, universal nut and jam nut. With this construction it is possible to uniformly heat treat the rod member, to obtain maximum physical properties for increasing strength and to resist fatigue. The sleeve member is also heat treated. Distortion and warpage are reduced. The sealing ring and nut are precision

Red-Rex

QUICK-JOINT

PIPE UNIONS



High Pressure Steel Union

6,000 lbs. Test

Made in 1½" Size for Blow-out Preventer Hook-Ups and the New Smaller Flow Lines

OIL CITY BRASS WORKS

FOUNDERS · MANUFACTURERS · MACHINISTS

BEAUMONT, TEXAS—U.S.A.

Export Office:

19 Rector St. New York City, U.S.A.

Sold Through Supply Stores

PROTECT

COSTLY MAPS; TRACINGS

With
This Last Word in

FILING CABINETS

Our improved Map Filing Cabinets offer a convenient and accurate method of filing and protecting maps and tracings of larger than average size . . . yet keeping them at your finger tips. These Cabinets have individual wells for each map, eliminating need for paper tubes. Adjusting blocks are provided for maps shorter than depth of well.

Stock sizes include 60, 100, 150 and 200-map capacity cabinets in both walnut and oak finish. Cabinets made to fit your specification on short notice.

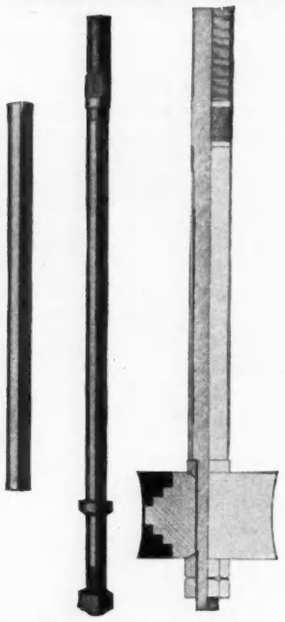
PORT CITY CABINET WORKS

HOUSTON, TEXAS

609-13 Quitman St. Phone Pres. 0725

300 miles freight allowance.

NOTES FOR THE Equipment Buyer and User



Regan Piston Rod

made of a material with proper ductility to effect and maintain a fluid-tight seal. The wear sleeve is slightly longer than the mating portion of the rod, providing a slight overhang of the wear sleeve for sealing engagement with the sealing ring. These replaceable rods are furnished in all sizes to fit all makes of piston pumps, and are furnished with A.P.I. taper or universal ends.

Insulation

General Electric Company, Schenectady, New York, has bulletin GEA-3330, which gives details for winding coils as well as results of using special insulating materials in coils.

Reamers

CHICAGO PNEUMATIC TOOL COMPANY

Chicago Pneumatic Tool Company, 6 East 44th Street, New York, has announced a new series of reamers covering a range of sizes from 5⅝ to 19 inches. They are made in three styles, one containing a double set of reamer cutters offset from each other and giving six points of contact; and long and short styles with single sets of cutters giving three points of contact. All but the short reamer body have space for both slips and elevators, the short body being provided with elevator space only.

Sizes are 5⅝ to 6¾ inches, 6⅞ to 7½ inches, 7⅝ to 9 inches, 9⅛ to 10 inches, 9⅞ to 10⅞ inches, 11 to 13 inches, 13¼ to 16 inches, and 16¼ to 19 inches.

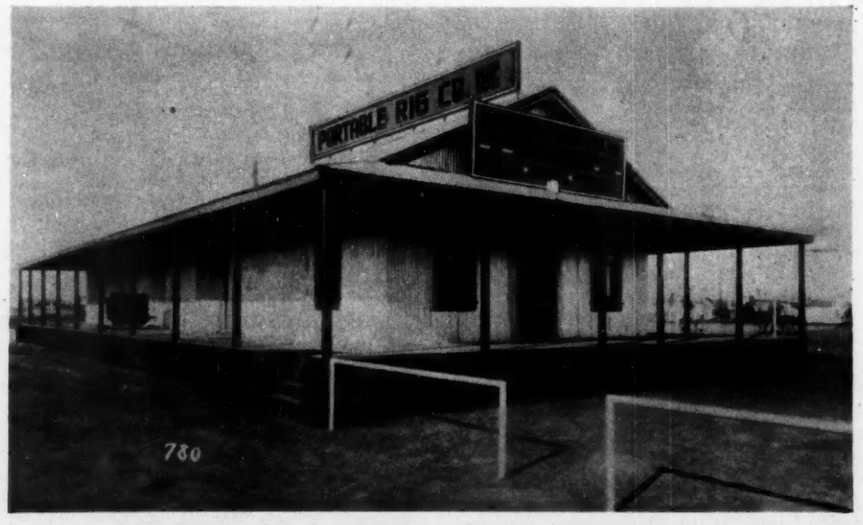
Dr. A. Lloyd Taylor Joins Oakite Technical Staff

Oakite Products, Inc., New York, makers of industrial cleaning materials, has appointed Dr. A. Lloyd Taylor to its technical staff. He will devote his attention primarily to development of cleaning materials for production and related cleaning operations of major industries.

Larkin Packer Company Announces Changes

A number of changes in the sales personnel of the Larkin Packer Company of St. Louis, Missouri, have been announced by J. J. Larkin, president of the company, following a recent meeting at the home office which was attended by all of the company's sales representatives.

W. B. (Bill) Porter, formerly field salesman for the Illinois field, has been



Portable Rig Company recently opened a branch at Odessa, Texas, to serve West Texas, and New Mexico. The branch, housed in the building shown above, carries a representative stock of parts for portable drilling equipment and Waukesha engines. Factory-trained service men are available day and night.

NOTES FOR THE Equipment Buyer and User

Home office employees of the Larkin Packer Company, St. Louis, Missouri, got together with the company's salesmen and posed for this picture on the occasion of a recent meeting at the home office which was attended by all sales representatives. Salesmen were taken on a tour of the plant and given an opportunity to meet the people who handle production for the company which had 2 employees when it was founded in 1905 and now provides work for well over 100 people.

made district manager with a territory which will include Illinois, Indiana, Michigan, Kentucky, Kansas, Oklahoma, the Texas Panhandle and part of North Texas. He will make his headquarters in Tulsa.

S. B. (Smitty) Smith, who formerly covered Illinois, Indiana and Kentucky has had his territory revised to include Indiana, Kentucky and Michigan.

M. L. (Jack) Jackson has recently joined the organization and will cover East Texas, North Louisiana and Arkansas.

C. F. (Charlie) Dougherty, who in the past has had to spread his efforts over a wide territory, has been made district manager of the Central and Gulf Coast Texas areas. He will make his headquarters in Houston.

Harold Swanton Named Vice President of Precision Bearings

Precision Bearings, Inc., Los Angeles, announces the election of Harold Swanton as vice president, succeeding Norman Bell who has resigned. Swanton, who has been sales manager of the company for several years, will continue in that capacity, in addition to his new duties as vice president. He has been identified with Precision Bearings, Inc., and its predecessor companies for some 15 years, and is widely acquainted throughout the manufacturing and service fields on the Pacific coast and in the far western states.

Pittsburgh Crucible Steel Names West Coast Representative

Pittsburgh Crucible Steel Company, Pittsburgh, has announced the appointment of Williams & Kilsby as exclusive Pacific Coast representatives. Williams & Kilsby have offices in the Standard Oil Building, Los Angeles.

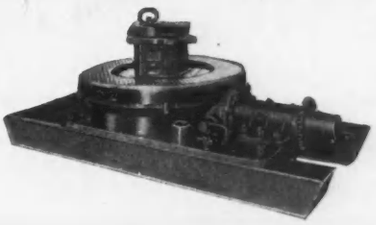
Texasteel Moves Hudson to Southwest Texas Territory

John Hudson has recently been appointed representative for Texasteel Manufacturing Company in Southwest

JOHN HUDSON

Standco
NO-SMOKE
STANDCO BRAKE LINING
Is the driller's best friend because it makes the easiest brake known and "feeds off" evenly while drilling. It never scores brake rims. See Page 2100 Composite Catalog.
Standco Brake Lining Co.
HOUSTON

BREWSTER
OB-18
OILBATH ROTARY



This new rotary is the last word in modern drilling equipment. 18" table opening. Ball-bearing table. Roller bearing pinion shaft. Table bearings, gears and pinion bearings separately lubricated. Table gear and pinion gear are machine cut and heat treated.

The BREWSTER CO., Inc.
Phone 2-3181 Shreveport, La.
New Iberia - Houma - Lake Charles - Bunkie

This Is The Type G
OTIS TUBING CLOSING TOOL
—The Tool You Asked Us To Sell!

U. S. Pat. 2180605, 1898261, 1984230

You've seen or heard about the Otis Tubing Closing Tool we've used with such success in over 5,000 wells to plug tubing when running or pulling under pressure. You asked us to put it on the market. Here it is... in an improved form, the Type G. It is an absolute seal, will not open prematurely regardless of how high or low the pressure, no weights to drop, will not interfere with running of bottom hole pressure bombs, leaves clean round opening of known diameter. Write us for further information and prices.

WRITE OTIS TODAY
PRESSURE CONTROL
INCORPORATED
DALLAS, TEXAS

Texas. He will work under the direction of the Houston office, but will headquarter at Alice.

Hudson for the past six months has been located in East Texas for the company, and formerly with Huasteca Oil Company in Mexico.

Kinkead Licensed to Manufacture New Composite Metal

R. E. Kinkead, Cleveland engineer and consultant in welding, has been licensed by United Engineering & Foundry Company, Pittsburgh, for manufacture of a machine to produce a new composite metal of wearing qualities superior to those of tin terne and galvanized steel. The material is ordinary steel with the surface alloyed by addition of chromium and nickel.

The makers say it provides exceptional wearing qualities at substantial cost savings.

The machine, which makes possible production of the new metal, utilizes the Lincoln "electronic tornado" process of automatic carbon arc welding.

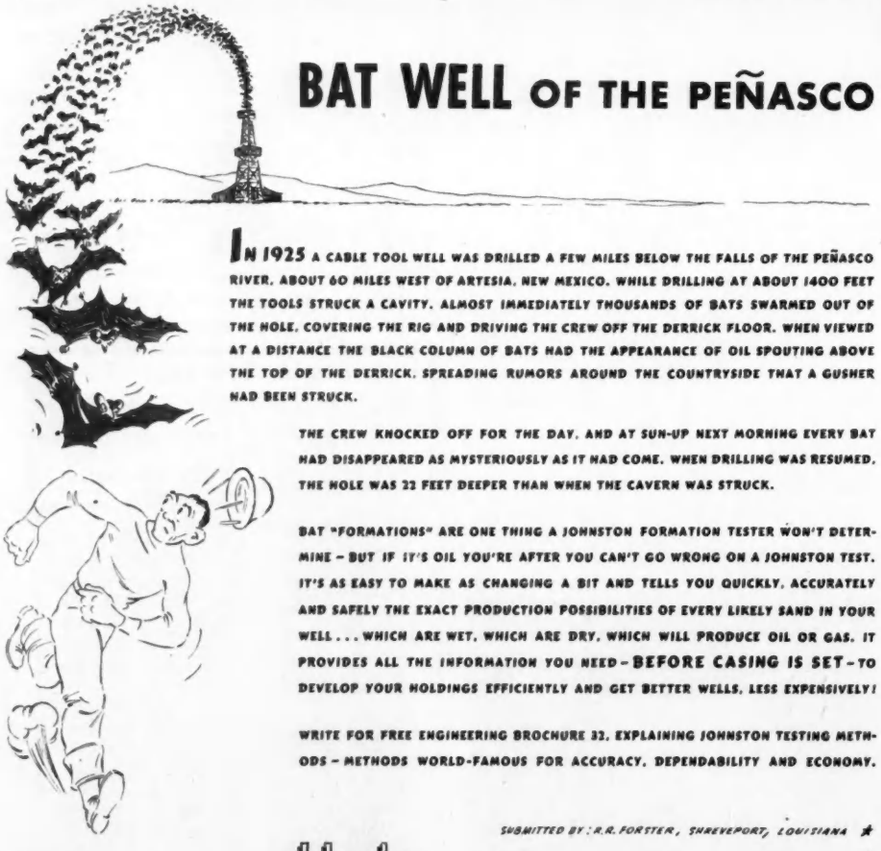
L. A. Estes Now Executive of South Chester Tube Company

L. A. Estes has been appointed executive vice president and general manager of South Chester Tube Company and of its subsidiary, South Chester Terminal & Warehousing Company, Chester, Pennsylvania. He comes to the company from Carnegie-Illinois Steel Corporation, Pittsburgh, where he was manager of the commercial division.

L. A. ESTES

Prior to his connection with Carnegie-Illinois, he was affiliated for many years with Truscon Steel Company.

It's a Fact — Johnston



BAT WELL OF THE PEÑASCO

IN 1925 A CABLE TOOL WELL WAS DRILLED A FEW MILES BELOW THE FALLS OF THE PEÑASCO RIVER, ABOUT 60 MILES WEST OF ARTESIA, NEW MEXICO. WHILE DRILLING AT ABOUT 1400 FEET THE TOOLS STRUCK A CAVITY. ALMOST IMMEDIATELY THOUSANDS OF BATS SWARMED OUT OF THE HOLE, COVERING THE RIG AND DRIVING THE CREW OFF THE DERRICK FLOOR. WHEN VIEWED AT A DISTANCE THE BLACK COLUMN OF BATS HAD THE APPEARANCE OF OIL SPOUTING ABOVE THE TOP OF THE DERRICK, SPREADING RUMORS AROUND THE COUNTRYSIDE THAT A GUSHER HAD BEEN STRUCK.

THE CREW KNOCKED OFF FOR THE DAY, AND AT SUN-UP NEXT MORNING EVERY BAT HAD DISAPPEARED AS MYSTERIOUSLY AS IT HAD COME. WHEN DRILLING WAS RESUMED, THE HOLE WAS 22 FEET DEEPER THAN WHEN THE CAVERN WAS STRUCK.

BAT "FORMATIONS" ARE ONE THING A JOHNSTON FORMATION TESTER WON'T DETERMINE – BUT IF IT'S OIL YOU'RE AFTER YOU CAN'T GO WRONG ON A JOHNSTON TEST. IT'S AS EASY TO MAKE AS CHANGING A BIT AND TELLS YOU QUICKLY, ACCURATELY AND SAFELY THE EXACT PRODUCTION POSSIBILITIES OF EVERY LIKELY SAND IN YOUR WELL . . . WHICH ARE WET, WHICH ARE DRY, WHICH WILL PRODUCE OIL OR GAS. IT PROVIDES ALL THE INFORMATION YOU NEED – BEFORE CASING IS SET – TO DEVELOP YOUR HOLDINGS EFFICIENTLY AND GET BETTER WELLS, LESS EXPENSIVELY!

WRITE FOR FREE ENGINEERING BROCHURE 32, EXPLAINING JOHNSTON TESTING METHODS – METHODS WORLD-FAMOUS FOR ACCURACY, DEPENDABILITY AND ECONOMY.

SUBMITTED BY: R.R. FORSTER, SHREVEPORT, LOUISIANA ★

Johnston

$5 $5 $5 $5

FIVE DOLLARS ($5.00) WILL BE PAID FOR EACH INTERESTING OR UNUSUAL FACT CONCERNING THE PETROLEUM INDUSTRY (EITHER IN THE UNITED STATES OR ABROAD) WHICH IS USED IN THIS SERIES OF JOHNSTON ADVERTISEMENTS. SUBSTANTIAL PROOF MUST ACCOMPANY EACH CONTRIBUTION. WHEN TWO OR MORE SIMILAR FACTS ARE SENT IN, THE AWARD WILL BE GIVEN TO THE FIRST ONE RECEIVED . . .

M. O. JOHNSTON
Oil Field Service Corp.
3117 SAN FERNANDO ROAD ALbany 0186
LOS ANGELES, CALIFORNIA
Bakersfield 2794 Ventura 5621
"Servicing California and Selling Exclusively Foreign"

FORMATION AND CASING TESTING — JOHNSTON

JOHNSTON
Oil Field Service Corp.
5702 NAVIGATION BLVD.
HOUSTON, TEXAS
"Servicing Mid-Continent and Gulf Coast"

"WHY SET CASING BEFORE YOU KNOW!"

Couplings

Farrel-Birmingham Company, 344 Vulcan Street, Buffalo, N. Y., has issued catalog No. 443, which explains the function of a flexible coupling and describes how Farrel Gearflex Couplings compensate for parallel or angular misalignment or a combination of both, illustrating the details of design and construction with a number of fine halftone plates. It gives the applications, ratings, dimensions and weights of the various types of flexible couplings manufactured by the company, illustrated with numerous charts and diagrams. Photographs of a number of coupling installations are also contained in this catalog and full information is given on such subjects as service factors and their use in making a selection of a flexible coupling for any particular application, as well as information necessary in ordering, and other data.

Atlas Powder Company Issues New Explosives Catalog

Atlas Powder Company, Wilmington, Delaware, has issued a new catalog covering products of its explosive department. It groups for ready reference products available for specialized fields and gives descriptions of the properties of each explosive. Included are specifications on blasting caps, electric blasting caps, electric squibs, blasting machines, rheostats, galvanometers and fuse.

Arthur J. Carr Dies

Arthur J. Carr, former vice president of Lucey Manufacturing Company and former president of Houston Pump & Supply Company, died January 30 in Los Angeles.

Squeaks from the Bull Wheel

Two for One

Yes, sir, the best way to get the most out of life is to fall in love with a great problem or a beautiful woman.

Why not choose the last one and get both?

Test of Sisterliness

"I can't marry you, but I'll be a sister to you."

"All right, Sis, lend me five dollars till next pay day, will you?"

Spontaneous

"Wait a minute. You are too quick. I didn't tell you to say 'Ah'."

"I know you didn't. I just caught a glimpse of your new nurse."

Or Service Stripes?

"Sir, er—that is, I would like to—er—that is, I have been going with your daughter for five years—."

"Well, whaddya want, a pension?"

Earn-Burn

"So your son is in college? How is he making it?"

"He isn't. I'm making it and he's spending it."

Smooth Sailing

"Have you ever noticed that most successful men are bald?"

"Naturally; they come out on top."

Playing Safe

Dentist: "Are we ready to proceed now, Judge?"

Judge: "Not until you swear to pull the tooth, the whole tooth, and nothing but the tooth."

In a Minor Key

"Madam, your cat has kept us awake two nights with its serenade."

"What do you want me to do—shoot the cat?"

"No, madam; but couldn't you have him tuned?"

Suggestion

"Every time they fire one of those big guns on the western front, $1000 goes up in smoke."

"Why don't they use smokeless powder?"

Not Wired for Sound

Here's a lovely doll. You lay it down and it closes its eyes and goes to sleep like a real baby.

Have you ever put a real baby to sleep, girlie?

Hey

First Pilot—It makes me cross to be told I haven't enough altitude.

Second Pilot—It makes me soar, too.

Speed

That ship of ours goes so fast that we often have to stop to cool the propeller.

That's nothing. Our destroyers go so fast that we have to stop to pick up wireless messages.

This One Is 500 Years Old

Feudal Lord—I hear you misbehaved while I was away, son.

Knight—In what manor, sir?

Aha

Why hasn't this job been done? It's nearly a month since I told you about it.

I forgot, sir.

Forgot; suppose I forgot to pay you. What would you say?

I should come and tell you immediately; not wait a month before I kicked up a fuss.

Righto

"Don't you know it is bad form to sop up gravy with your bread?"

"It may be bad form, but it is mighty good taste."

Preparation

"And what are you going to be when you grow up?"

"Well, after I've been President for a while to please mother, an' a lawyer a while to please dad, I think I'll be a flyer."

Wrong Question

Won't you be very, very happy when your sentence is over

I dunno, ma'am, I dunno. I'm in for life.

Old in the Service

We have everything on the menu today.

So I see. How about a clean one?

Wrong Adjective

That book you recommended appeared terribly dull. I thought you said it had a naughty problem in it.

Naughty problem? You misunderstood me. I said knotty problem.

Fine Distinction

"Where did you get the A on your sweater?"

"I played football for Harvard."

"But Harvard begins with H."

"I know; but I played on the second team."

One Thing at a Time

"We have an office boy who whistles while he works."

"You're fortunate. Our office boy just whistles."

He's Hooked

And now, dear, that we are married, let us have an understanding about our affairs. Do you wish to be president or vice president?

Neither. You be both; I'll just be the treasurer.

Does Temperance Pay?

This ticket to the west coast costs you $100, and allows you a three-day hangover in Chicago.

And how much if I don't get drunk in Chicago?

Ker Choo

I sneezed a sneeze into the air; It fell to earth I knew not where. But hard and cold were the looks of those In whose vicinity I snoze.

Dark Mystery

See hyah, woman. Didn't Ah see you kissin' a no-count piece o' trash last night?

Gwan, Tobe. It was so dark Ah thought it was yo'.

Come to think of it, mebbe 'twas me —what time was dat?

Gotkool
WATER CANS
& COOLERS
GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage.
GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today! . . . . . .
Gott
GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.
GOTT WATER COOLER
Made in 3, 5, 8, 10 and 20 gallon sizes
H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

INDEX TO ADVERTISERS

★Indicates that detailed information on the manufacturer's products or services may be found in the 1939 edition of the Composition Catalog of Oil Field & Pipe Line Equipment.

A	Page
*Abercrombie Pump Co.	—
Acme Gas Lift Co.	—
Air Reduction Sales Co.	—
*Ajax Iron Works.	—
*Alisteel Products Manufacturing Co.	—
*Alten's Foundry & Machine Works.	—
*Aluminum Company of America.	—
Aluminum Ore Company	—
American Askania Corp.	—
American Assn. of Petroleum Geologists.	68
*American Cable Division of American Chain & Cable Co.	—
American Cast Iron Pipe Co.	—
*American Hammered Piston Ring Division of Koppers Co.	—
*American Iron & Machine Works Co.	—
*American Manganese Steel Division of The American Brake Shoe & Foundry Co.	—
*American Meter Co.	—
*American Sand-Banum Co.	—
*American Steel & Wire Co.	—
*Axelson Manufacturing Co.	—

B	Page
*Baash-Ross Tool Co.	—
*Baker Oil Tools, Inc.	3
*Baldwin-Duckworth Division of Chain Belt Co.	—
The Baldwin Locomotive Works.	—
*Bantam Bearings Corp.	—
*Baroid Sales Division	—
William M. Barret, Inc.	68
*Bartlett-Hayward Division of Koppers Co.	—
Bethlehem-International Supply Co.	—
*Bethlehem Steel Co.	—
*Black, Sivalls & Bryson	—
*Bradford Motor Works.	66
*The Brewster Co.	7 and 71
The Bridgeport Machine Co.	—
*Broderick & Bascom Rope Co.	—
A. M. Byers Co.	8
*Byron Jackson Co.	—

C	Page
Jo H Cable	—
*Cameron Iron Works	5
*Cardwell Manufacturing Co.	—
Carnegie-Illinois Steel Corp.	—
*J. I. Case Co.	57
*Caterpillar Tractor Co.	—
*Chain Belt Co.	—
*Clark Bros. Co.	—
Clark Machine Co.	—
*Climax Molybdenum Co.	—
Columbian Steel Tank Co.	—
*Continental Motors Corp.	—
Continental Oil Co.	—
The Continental Supply Co.	—
*Fred E. Cooper Co.	Third Cover
*The Cooper-Bessemer Corp.	—
*Core Laboratories, Inc.	—
*Crane Co.	—
*Crum-Brainard	—
W. H. Curtin Co.	—

D	Page
*Darling Valve & Manufacturing Co.	61
De La Vergne Engine Co.	—
Thos. Devlin Manufacturing Co.	—
*Diamond Chain & Manufacturing Co.	—
*Dowell Incorporated	—
*The Dragon Manufacturing Co.	—
*E. I. du Pont de Nemours & Co.	—

E	Page
*Eastman Oil Well Survey Co.	—
Economy Electric Lantern Co.	—
Elastic Stop Nut Corp.	—
Elmax Construction Co.	—
Enardo Foundry & Manufacturing Co.	—

F	Page
*Geo. E. Failing Supply Co.	—
First National Bank in Houston	—
First National Bank & Trust Co. of Tulsa	—
Fluid Packed Pump Company	—
Ford Motor Co.	29
The Fort Worth Clearing House Assn.	—
The Fort Worth Laboratories	68
*Foster Cathead Co.	—
The Benjamin Franklin Hotel	—
*Franks Manufacturing Co.	—
Frick-Reid Supply Corp.	—
Frost National Bank	—

G	Page
*Gardner-Denver Co.	—
*The Garlock Packing Co.	—
*Gas Lift Corp.	—
*Gaso Pump & Burner Manufacturing Co.	—
*General Electric Co.	—
General Geophysical Co.	—
General Motors Corp.	—
Geophysical Service, Inc.	—
*Goodyear Tire & Rubber Co.	—
*H. P. Gott Manufacturing Co.	73
*Gray Tool Co.	—
*Green Head Bit & Supply Co.	—
*The Guiberson Corp.	—
Gulf Envelope Co.	—
Gulf Publishing Co.	54, 58 and 62

H	Page
*Halliburton Oil Well Cementing Co.	—
Hardway & Cathey	68
*Haynes Stellite Co.	—
*Hazard Wire Rope Division of American Chain & Cable Co.	—
The Hercules Powder Co.	—
The Hercules Steel Products Co.	—
*Hewitt Rubber Corp.	—
Hoard Exploration Co.	68
*A. C. Horn Co.	—
Houston Laboratories	68
*Hughes Tool Co.	Fourth Cover
Humble Oil & Refining Co.	—
Hyatt Bearings Division	—

I	Page
Independent Exploration Co.	—
*The Inferno Co.	—
*Ingersoll-Rand Co.	—
*International Harvester Co.	—
*The International Nickel Co.	—

J	Page
*D. O. James Manufacturing Co.	—
Jarecki Manufacturing Co.	35
*Jensen Brothers Manufacturing Co.	—
*Johns-Manville	—
*M. O. Johnston Oil Field Service Corp.	72
The Jones Oil Co.	—
The S. M. Jones Co.	—
*Jones & Laughlin Steel Corp.	—
Jones-Shelburne, Inc.	—

K	Page
The Kennedy Valve Manufacturing Co.	—
*Kerotest Manufacturing Co.	—
*Keuffel and Esser Co.	—
*Kinzbach Tool Co.	—
*Koppers Co.	—
Kropp Forge Co.	—

L	Page
Landis Machine Co.	—
*Lane-Wells Co.	33
*Larkin Packer Co.	—
The Thomas Laughlin Company	—
*The Layne & Bowler Co.	—
*Le Roi Co.	—
Lee Rubber and Tire Corp.	—
*A. Leschen & Sons Rope Co.	—
*The Lincoln Electric Co.	—
*Line Scale Co.	—
*Link Belt Co.	—
Lone Star Cement Corp.	Second Cover
*Lucey Boiler & Manufacturing Co.	—
*The Ludlow Valve Manufacturing Co.	—
*Lufkin Foundry & Machine Co.	—

M	Page
*MacClatchie Manufacturing Co.	—
Macwhyte Co.	—
*D. S. Mair Machinery Corp.	—
*Maloney Tank Manufacturing Co.	—
Manhattan Rubber Division	—
The Marley Co.	—
Marmon-Herrington Co.	—
*Martin-Decker Corp.	—
Hotel McAlpin	66
McCollum Exploration Co.	—
*McEvoy Co.	—
McGill Manufacturing Co.	—
McKissick Products Corp.	—
*Merco Centrifugal Co.	—
*Merco Nordstrom Valve Co.	First Cover
*Merla Tool Corporation	—
*Metric Metal Works.	—
*Midco Bailer Co.	—
*Miller Sand Pump Co.	—
*Minneapolis-Moline Power Implements Co.	—
*Mission Manufacturing Co.	—
*Lee C. Moore & Co.	—
*Morse Chain Co.	—
*Motor Improvements, Inc.	—
Mudrite Products Co.	—
Murray Rubber Co.	—
Muskogee Iron Works.	—

N	Page
National Bank of Tulsa	—
*National Lead Co.	—
The National Supply Co.	—
National Tube Co.	—
New Mexico Bureau of Mines	68
*Novo Engine Co.	58

O	Page
*O.C.S. Manufacturing Co.	—
Walter O'Bannon Co.	—
*Oil Center Tool Co.	—
*Oil City Brass Works	70
Oil Well Supply Co.	27
*Otis Pressure Control, Inc.	71

P	Page
*The Parkersburg Rig & Reel Co.	53
*Patterson Ballagh Corp.	6
*Pelican Well Tool & Supply Co.	60
Petroleum Electric Power Assn.	—
Petroleum Rectifying Co. of California	—
Petty Geophysical Engineering Co.	—
*Pittsburgh Equitable Meter Co.	First Cover
*Pittsburgh Steel Co.	—
Plymouth Cordage Co.	4
Port City Cabinet Works	70
*Portable Rig Co.	—

R	Page
Raybestos-Manhattan	—
Reading-Pratt & Cady Division of American Chain & Cable Co.	—
*Rector Well Equipment Co.	—
*Reda Pump Co.	—
*Reed Roller Bit Co.	—
*Regan Forge & Engineering Co.	—
*Joseph Reid Gas Engine Co.	—
*Republic Steel Corp.	—
*The Ridge Tool Co.	—

S	Page
Safety Gas Main Stopper Co.	—
Jack A. Schley	68
*Schlumberger Well Surveying Corp.	—
The Second National Bank of Houston	—
Seismic Exploration Co.	—
Seismograph Service Corp.	—
Shell Oil Co., Inc.	—
*SKF Industries, Inc.	—
A. O. Smith Corp.	—
*E. M. Smith Co.	—
*Howard Smith Co.	—
*South Chester Tube Co.	—
Southern Engine & Pump Co.	—
Southern Pacific Lines	—
Spang Chalfant, Inc.	—
*Sperry-Sun Well Surveying Co.	—
Standard Supply and Hardware Co.	—
*Standco Brake Lining Co.	71
*Star Drilling Machine Co.	—

T	Page
*Templeton, Kenly & Co.	—
Texaco Development Corp.	—
The Texas Corp.	—
Texas Electric Steel Casting Co.	—
Texas Foundries, Inc.	—
*Texas Iron Works	—
Thermoid Rubber, Division of Theroid Company	—
Thompson Tool Co.	—
Thornhill-Craver Co.	55
*The Timken Roller Bearing Co.	23
*Tretolite Co.	—
Trinity Portland Cement Co.	—

U	Page
*Union Wire Rope Corp.	—
Union Carbide & Carbon Corp.	—
*Unit Rig & Equipment Co.	—
*United States Rubber Co.	25
United States Steel Corp.	27
*Universal Atlas Cement Co.	—

V	Page
*Vickers, Inc.	—

W	Page
Warner & Swasey Co.	10
The Watson-Stillman Co.	—
*Waukesha Motor Co.	—
*Well Machinery & Supply Co.	—
*Westinghouse Electric & Mfg. Co.	—
*Wheeling Machine Products Co.	—
*The Wheland Co.	—
*Wickwire Spencer Steel Co.	—
*J. H. Williams & Co.	—
*Wilson Manufacturing Co.	—
*Wilson Supply Co.	—
Witte Engine Works	67
*Worthington Pump & Machinery Corp.	—
Wyatt Metal & Boiler Works	—

Y	Page
Youngstown Sheet & Tube Co.	—

Hughes

announces

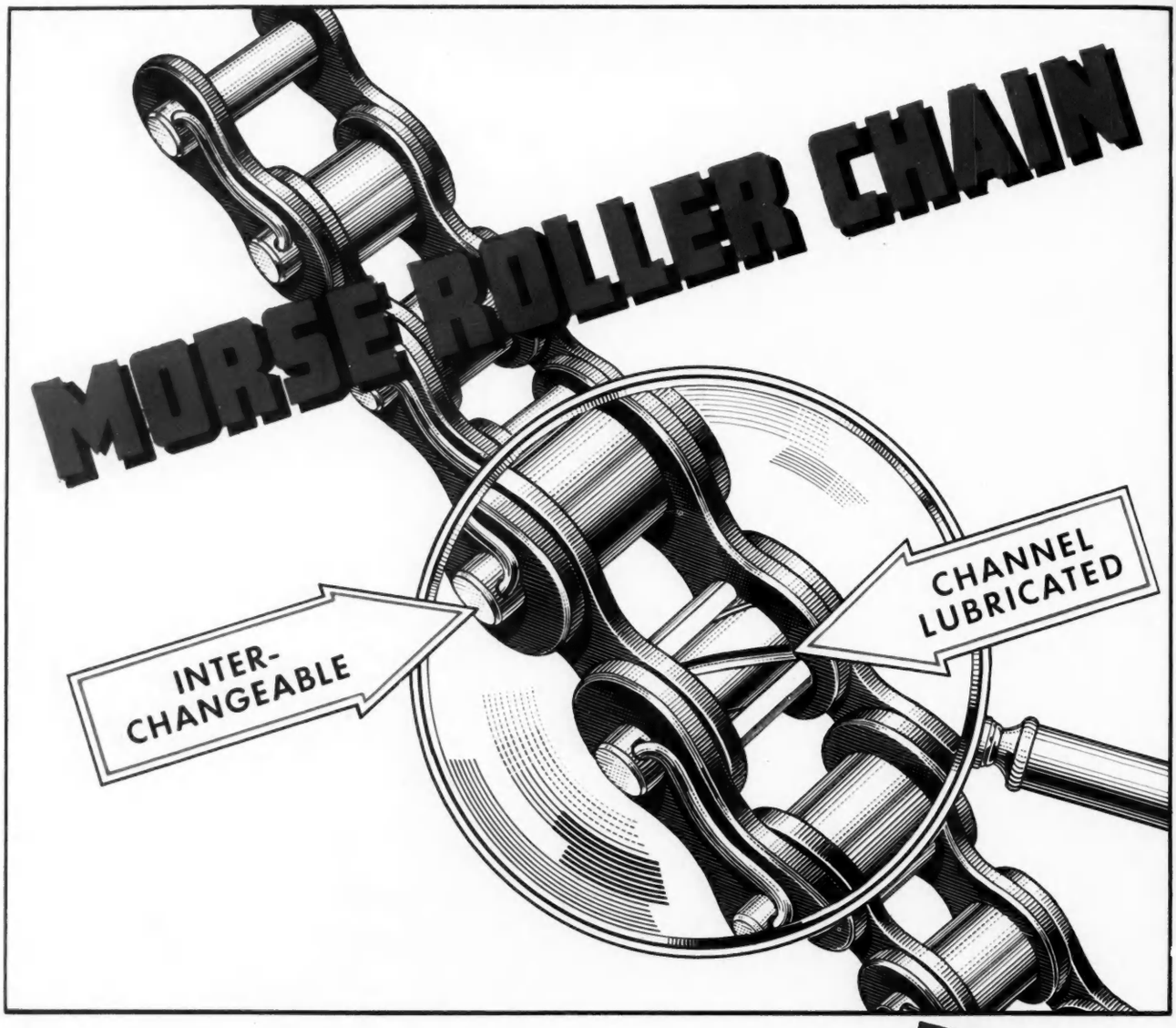
A MAJOR DEVELOPMENT

of interest to the entire

Drilling Industry

●

See Pages 35 to 40



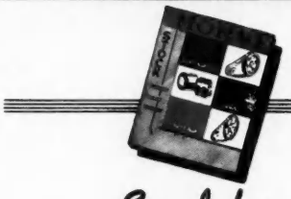
GREATEST roller chain advance in a decade! Morse Roller Chain, now interchangeable with all standard roller chains, and self-lubricating with a channel lubrication system in every link!

See this great chain. See for yourself how oil placed on the rollers flows over the ends to the spaced channels on the bushings, flows through the side plates to the pin link, spreads in a protective film over the entire pin and bushing contact area.

Positive lubrication of the heart of the roller chain—the pin and bushing contact surfaces—adds years to the life of the drive, cuts maintenance and service, boosts production.

First cost? Actually no more for Morse interchangeable, channel lubricated roller chains than for ordinary types!

Get full information from the Morse man. There's one near you.



Send for

NEW COMPLETE MORSE STOCK BULLETIN

Just off the press. Complete engineering, construction and installation data on the Morse positive power transmission products. A valuable book for every engineer. Write for it today!

SILENT CHAINS ROLLER CHAINS FLEXIBLE COUPLINGS KELPO CLUTCHES

MORSE *positive* DRIVES

MORSE CHAIN COMPANY ITHACA N. Y. DIVISION BORG-WARNER CORP.

BAKER CEMENT RETAINER

CASE STUDY NO. 402

A Case study of an Actual Well Completion Problem Solved By Using the Baker Cement Retainer

Problem: To shut off water entering from bottom of producing zone.

Method: Squeeze cement with Baker Cement Retainer equipped with 50' (drillable) Tail Pipe.

Result: Water completely shut off (before performing squeeze, production was cutting 35% water).

• DETAILS •

Field: Kilgore, Texas

Depth of Well: 3700'

Depth Retainer Set: 3630'

Breakdown Pressure: 500 #

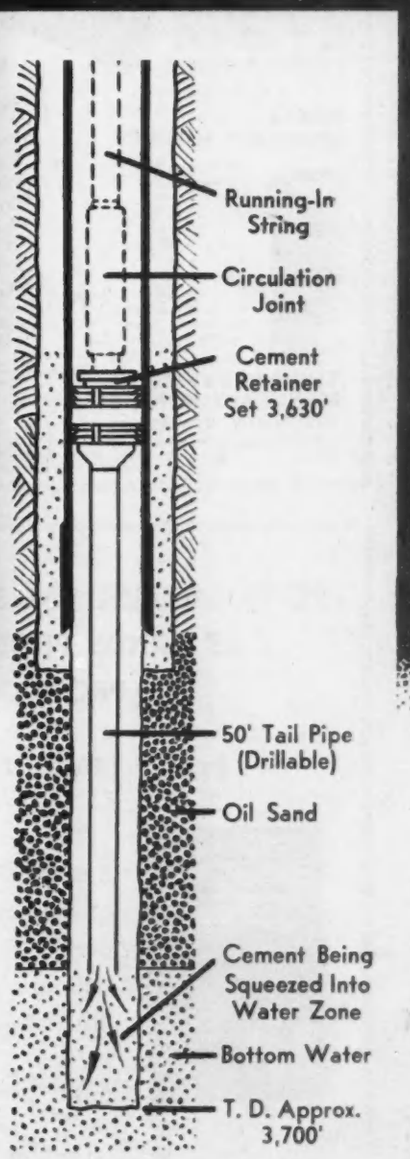
Final Pressure: 2100 #

Number of Sax Put Away: 534

How Cement Discharged: through lower end of Tail Pipe into open hole.

BAKER — SAVE A WELL — CEMENT RETAINER

"For Friendly Service, and Dependable Products, Specify BAKER."



Squeeze cementing with Baker Cement Retainer (with Tail Pipe) to shut off bottom water.

IF YOU HAVE water problems the Baker Cement Retainer may provide a safe, economical solution to these difficulties. Complete details concerning the Baker Cement Retainer and its many important field applications will be found in the Baker section of the Composite Catalog; also in the Baker Broadcast No. 17-A. The latter is a comprehensive, 40-page illustrated treatise which will be sent to any interested oil man upon request.

BAKER OIL TOOLS, INC.

P. O. Box 127, Vernon Station, LOS ANGELES, CALIFORNIA

P. O. Box 3048, Houston, Texas • 19 Rector St., New York City

IMPORTANT BAKER CEMENT RETAINER APPLICATIONS INCLUDE: Squeeze Jobs Re-Cementing • Cementing Behind Sections of Pipe • Reducing Gas/Oil Ratios • Series Cementing Plugging Off Bottom Fluids • Plugging Back to Upper Zones • Testing Upper Cased Formations As a Heaving Plug • As a Bridge Plug at any Place in Casing or Liner

BAKER CEMENT RETAINER

HERE'S WHY

it pays to install the ONLY fittings that give..

Devlin Dependability gives real protection against pipe line troubles . . . saves costly repair charges . . . eliminates many of your headaches. Specify Devlin Fittings and get Devlin's Dependability.

FRETZ SEAMLESS NIPPLES

Made from new high quality tested seamless tubing . . . accurately threaded . . . carefully reamed. Standard, Extra heavy, Double Extra heavy. Black or Galvanized. Shipped with Distinctive Devlin Thread Protectors.

DEVLIN HEAVY OIL MALLEABLES
—ELBOWS and TEES—

For 300 pounds Working Steam Pressure and for cold, Non-Shock Working Oil, Water or Gas Pressures as follows: 1" and smaller . . . 2000 lbs.; 1¼" to 2" . . . 1500 lbs.; 2½" to 4" . . . 800 lbs. 1000 lbs.; 6" . . .

FULL RANGE OF SIZES AVAILABLE IN BLACK OR GALVANIZED FINISH

THOMAS DEVLIN MANUFACTURING CO.
BURLINGTON, NEW JERSEY

Complete stock (including Standard, Malleable and Cast Iron Fittings and Nipples) always carried by J. E. Bobo, 2120 Rothwell St., Houston, Texas, and at the factory. Write for Catalog 15-A.

PETROGRAPHIC AND PHYSICAL CHARACTERISTICS OF SANDS FROM SEVEN GULF COAST PRODUCING HORIZONS

By M. T. HALBOUTY, B.S., M.S., Merit Oil Corp.

The material printed in this book was first published in The OIL WEEKLY in a number of installments, extending over a seven-week period. Because of the widespread interest and demand for copies, it is being presented in book form for the benefit of those who may wish to study or continue the research work of M. T. Halbouty, the author.

Size 5½" x 8¼" — Fabrikoid Binding
126 pages illustrated. Price $1.50

Send check to

THE GULF PUBLISHING COMPANY
P. O. Drawer 2811 Houston, Texas

LOOKING AHEAD

WITH THE EDITOR

Future of Crude Market and Prices to Be Analyzed.

IN view of the recent reductions of crude oil prices in California, the crude price postings in the rest of the country have come under close examination, and some anxiety is felt that maintenance of present postings may not be possible.

Concern is accentuated by the persistent weakness of the gasoline market and the continued overbuilding of gasoline stocks.

On the other hand, hope still runs high that 1940 will be a remarkably good year for gasoline consumption, and that the surplus stocks actually may not be as excessive as now indicated.

It is recognized at the same time that low gasoline prices currently are compensated to some extent by the relatively good prices for lubricants, fuel oils, and other products.

In view of these contrasting situations within the market picture, therefore, there is a lack of certainty regarding the actual condition of the crude oil markets and the most likely future of crude prices.

An analysis of the present market situation now is being made by this publication, and the findings of the investigation will be revealed in an article in the next issue.

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.